I. EXECUTIVE SUMMARY

On Sunday, January 13, 2002, a major winter storm hit Maine (Winter Storm 2002 or the Storm). The brunt of the Storm impacted mid-coast Maine from the Brunswick area through Bar Harbor and caused electric service outages to more than 70,000 Maine citizens. Telephone service was also significantly impacted, both as a result of downed wires and the failure of power-dependent electronics. We estimate that at least 11,750 Verizon customers lost their telephone service as a result of the Storm. Central Maine Power (CMP), Bangor Hydro Electric (BHE) and Verizon did not completely restore service to their customers until over a week after the Storm first hit.

During and after the Storm, the Maine Emergency Management Agency (MEMA) as well as several other county emergency agencies contacted the Commission regarding their concerns about the length of time it took to restore services and the lack of communication by the utilities with emergency management officials. In March, we opened this Investigation and began the process of reviewing the utilities' response to the Storm. After the initial round of discovery, we narrowed our focus to the two major electric utilities, CMP and BHE, and the main telephone provider in the State, Verizon.

We found that most of the issues that impaired effective response and restoration in this Storm had also arisen during previous storm events, including the Ice Storm of 1998. In our *1998 Ice Storm Order*[1], we issued numerous specific recommendations to utilities relating to improving restoration after major

[1] *Inquiry into the Response by Public Utilities in Maine to the January 1998 Ice Storm*, Docket No. 98-026, Order (Dec. 29, 1998) [hereinafter "*1998 Ice Storm Order*"].

storms and other emergencies. We believe that if utilities had implemented those recommendations over the previous four years, we would not have had the problems and delays associated with the utilities' response to Winter Storm 2002. Thus, rather than make additional recommendations as a result of this Investigation, we will order CMP, BHE, and Verizon to take specific actions to rectify the problems we uncovered.

Our first finding is that none of the three utilities adequately prepared for the Storm. While all three have procedures in place for monitoring weather reports, none of them reacted proactively to the increasingly dire forecasts issued on Saturday, January 12th. We believe the lack of reaction was caused, in part, by the fact that the Storm occurred on a weekend when staffing levels are at a minimum and when the procedures for reviewing weather reports are streamlined. We order all three utilities to react more proactively both before and during damage-causing weather conditions such as high winds and icing. We also order CMP to develop better procedures for more closely monitoring weather reports on weekends and to provide for more widespread communication of weather information during the weekend.

The second problem associated with preparation was the underestimation and miscategorization of the Storm by all three utilities. CMP and BHE both initially classified the Storm as a Level 2 (on a scale of 1-3) under their respective emergency response plans. This misjudgment greatly impacted how the utilities, especially CMP, responded to the Storm and likely caused an unnecessary delay in restoration efforts. While BHE eventually upgraded the Storm to a Level 3, an

earlier declaration would have ensured a quicker reaction to the Storm. We believe BHE failed to make the earlier declaration because the personnel reviewing weather forecasts did not have specific criteria for the types of weather that should trigger a more proactive approach. Thus, we order BHE to develop guidelines regarding the types of weather conditions that should prompt notification of other personnel and pre-outage precautions.

CMP never upgraded the Storm to a Level 3, even though the number of outages met the Level 3 criteria. Because the Storm was considered a Level 2, the formal damage assessment requirement under CMP's emergency plan was not triggered nor was the corporate storm room opened. During a Level 2 event, local Service Center managers direct the assessment and restoration efforts rather than corporate headquarters. The lack of centralized management during the Storm resulted in inadequate and inaccurate assessment of damages, inefficient deployment of resources, and incorrect decision-making regarding the need for outside assistance. All of these mistakes ultimately resulted in longer outages for customers, including other utilities. Thus, we order CMP to develop specific guidelines for unusual weather conditions in a weather report or alert that would prompt action within their emergency response plans, and to initiate a plan for documenting decisions relating to any pre-storm preparations as a result of weather reports (alerts) that fall within the guidelines. Finally, we order CMP to document all substantial deviations from its emergency plan and to make that documentation available to the Commission upon request.

Verizon's response to the Storm was to wait until serious problems arose before taking any action. Even though the Storm hit on Sunday and hundreds of trouble reports were filed, Verizon waited until Monday morning before it even began assessing the damage to its network. Verizon then waited until Tuesday before it began using assistance from other states and before it assigned a specialist to manage the restoration and maintenance of power to Digital Loop Carrier systems which were causing additional outages due to the failure of Verizon's back-up power supplies (generators and batteries). To address these issues, we order Verizon to put procedures in place that allow for calling up additional staff more quickly, to appoint regional managers who will be responsible for managing DLC power issues during outages, and to develop a specific plan for rotation of generators and batteries.

The final issue relating to preparation was the failure of Verizon to use and follow its emergency response plans. Verizon specifically testified that it did not use its plan and, indeed, that it was not necessary to use such a plan because its ordinary practices provided adequate response. Thus, we order Verizon to update its emergency response plan and to test and review the plan periodically. We also suggest that if Verizon believes referral to the plan during an emergency is too cumbersome, it should develop checklists for quick reference.

The next major problem uncovered by our Investigation was the inadequacy of the communication between the utilities and emergency management agencies, customers, the Commission and other utilities. As we noted in our *1998 Ice Storm Order*, government needs accurate and timely

information about infrastructure damage and restoration plans to manage resources during emergencies.[2] We find that utilities' communications with the Commission and with state and county emergency management agencies during Winter Storm 2002 were largely inadequate to provide the necessary information about the nature and extent of damage and its effect on critical and essential facilities, and planned restoration.

First, on a positive note, we did find that BHE did a good job of communicating with emergency management personnel. BHE provided MEMA and county emergency management agencies (EMAs) with detailed outage information though periodic e-mails; both MEMA and county EMAs testified to their satisfaction with the information provided by BHE. Conversely, CMP and Verizon had no communication at the corporate level with emergency management agencies and, based upon testimony from the EMAs, little or no communication with EMAs at the local level. This is unacceptable. EMAs need information regarding estimated times for restoration so that important decisions can be made regarding establishment of emergency shelters and informing the public. While it appears that as a result of our Investigation all three utilities have entered into specific agreements with county EMAs regarding communication, we specifically order Verizon to provide detailed outage information to MEMA as well as county EMAs during prolonged outages and CMP to file a report within 90 days of the Order on what additional steps or additional triggers might be taken

[2] *1998 Ice Storm Order* at 41.

or put in place to assure proper notification of extended outages to emergency management personnel.

Despite previous recommendations by the Commission for utilities to improve their communications with customers during outages, none of the utilities did a good job communicating with their customers regarding the progress of restoration efforts and the expected duration of the outages. In a state like Maine where winters are extremely cold, and in situations where customers rely on utility service for medical reasons, it is essential that utilities communicate with their customers regarding the expected duration of the outage in their area. Vague press releases providing summary, non-specific information are not sufficient. Thus, we order CMP and BHE to develop and submit a comprehensive Restoration Information Plan to keep customers better informed of restoration activities.

Communication with the Commission regarding the Storm, outages, and restoration efforts was insufficient. Chapter 130 of Rules applies to all utilities and requires that outages impacting 500 customers or 1% of the utility's customer base, whichever is higher, be reported tot he Commission promptly. Chapter 200 of our Rules applies only to local exchange carriers and requires outages affecting 500 or more lines and which last more than 5 minutes to be reported "as soon a possible, but no later than within twenty-four hours." Verizon misinterpreted our Rules and did not report all reportable outages. Despite the fact that thousands of customers lost service over a 5-7 day period, Verizon filed only one outage report relating to the Monroe exchange. In addition, we found

that Verizon had been under-reporting customer outages in the service quality data it provides the Commission pursuant to its Alternate Form of Regulation. Specifically, Verizon only reported the number of customers who filed trouble reports, rather than the actual number of customers who were out of service. Thus, we order Verizon to change the way it reports outages to the Commission, both in terms of when reports are filed and the number of outages that are reported.

CMP ignored the Commission's reporting protocol for Chapter 130 and only provided the Commission with copies of vague press releases. The Commission was forced to contact CMP everyday to try to get better information to pass on to customers who could not get any information from CMP themselves. BHE, on the other hand, did a good job keeping the Commission informed both during and after the Storm through its periodic e-mails with relatively detailed outage information. Thus, we order CMP to comply with the Chapter 130 reporting protocol during all future outages. To the extent that specific circumstances may warrant a deviation, CMP must obtain a waiver from the Director of Technical Analysis or the Director of the Consumer Assistance Division.

Finally, we found that the utilities did not communicate among themselves at the corporate level. While all three utilities testified that communication did occur at the local service center/garage level, we have no evidence that the communication did take place, and even if it did, it is not sufficient. Restoration after a large storm requires coordination and cooperation among the utilities;

such communication can only occur when utility managers communicate with each other. Thus, we order all three utilities to establish specific contacts with each other and other utilities within their service territories.

The next major area of concern we uncovered was the lack of coordination and management of the restoration efforts. As was noted above, in the case of CMP, we believe the mismanagement of restoration stems from the decision to categorize the Storm as a Level 2. Specifically, the centralized assessment procedures contained in CMP's emergency plan were not triggered because of the storm categorization. Instead, assessment was done within service centers by personnel who were not specifically dedicated to assessment duties. We believe this caused CMP to underestimate the damage done to its systems and to incorrectly determine that mutual aid was not needed. In addition to problems associated with assessment, we are also concerned that CMP did not coordinate the deployment of personnel to maximize resources dedicated to restoration. We order CMP to file a report within 90 days of this Order outlining a process for tracking and monitoring crew deployment.

BHE does not have within its ERP a formal process or procedure for assignment of personnel dedicated to damage assessment, either corporately or on a district level. This lack of a formal damage assessment process concerns us because it impairs management's ability to effectively estimate the need for resources and then efficiently assign them. In addition to problems associated with assessment, we found that BHE did not have sufficient personnel available to conduct customer callbacks to determine whether an outage had been

cleared. BHE relies on its outage tracking system, Power On, when making decisions regarding restoration priorities. If the information in the Power On system is inaccurate or reflects outages that have already been cleared, resources will be misdirected to areas already cleared while areas that are still out are underserved. Thus, we order BHE to: (1) develop a formal damage assessment plan within its ERP and file the plan within 60 days of this Order; (2) file a report within 60 days of this Order outlining the improvements it will make in handling callbacks to customers for populating outage records on the Power On System; and (3) file a report within 90 days of the Order outlining a process for tracking and monitoring crew deployment.

As for Verizon, we find that it failed to devote the necessary resources, both personnel and hardware, to keep its DLC systems powered and functioning during the commercial power outages. Verizon did not have a specific contingency plan in place nor did it place a high enough priority on keeping the DLCs powered. Indeed, Verizon waited two days before it assigned someone to coordinate the restoration and maintenance of DLC power. By that time, many DLCs had lost power, some for days, and it was difficult to get on top of the problem. We also find that Verizon's service restoration priorities do not reflect the importance of maintaining and restoring DLCs. Thus, we order Verizon to: (1) file a plan covering all DLCs in Maine which provides for managing DLC back-up power maintenance such that customers served by DLCs do not lose service solely due to a lack of commercial power; (2) provide restoration priority alternatives that would give customers of out-of-service DLCs higher service

restoration priorities than they have under the existing system based on the order in which customer trouble reports are received; (3) develop and file by October 1, 2003, written documentation and procedures which provide the current location of all available generators by county (or other reasonable geographic subdivision) and which suggest possible rotations of generators if all commercial power is lost in the geographic area; and (4) purchase any additional generators needed in order to ensure a feasible generator rotation plan by January 1, 2004.

The final major issue addressed in our Investigation is the need for utilities to conduct self-assessments of their restoration performance after a major storm or other emergency. In the past, we have encouraged utilities to conduct self-assessments because we believe they serve an essential function in identifying performance improvements that ultimately enhance customer service. After Winter Storm 2002, Verizon did not conduct any assessment of its performance while both BHE and CMP conducted very specific reviews of their performance. To ensure that these utilities conduct self-assessments after all significant storm and emergency events, we first order Verizon to develop a policy that requires a formal assessment of its performance in restoring services, in maintaining power to DLCs, and in managing the personnel and resources that support those activities for all wide-spread, multi-day outage events; the assessment must be completed within 90 days of the event and filed with the Commission 30 days later. As for CMP and BHE, we order them to conduct an internal assessment of all Level 2 and Level 3 storms and provide a copy of that written assessment to the Commission within 120 days after the conclusion of the storm.

II. BACKGROUND

A. Ice Storm of 1998

To place our investigation into utility response to the January 2002 storm event in context, we first examine the results of our investigation into the last major storm event in 1998. During the Ice Storm of January 1998, a winter storm dropped significant amounts of freezing rain, freezing drizzle, and sleet on much of the state, with ice accretions well over one inch in some areas of central and coastal Maine. The Ice Storm of 1998 interrupted electric service to about 700,000 persons, businesses, and governments in most areas of Maine, affecting more than half of all Maine citizens. The storm also adversely affected telecommunications and water services in some areas of the state. Damage to utility infrastructure in many parts of Maine was severe and continued to cause infrastructure damage and outages for over two weeks.[3] While the event was severe, it was not unprecedented. Winter weather experts expect storms of similar magnitude every 40 to 90 years.[4]

On January 21, 1998, we initiated an Inquiry into the response by public utilities in Maine to Ice Storm 1998. Our Staff analyzed reports from utilities, conducted discovery of utilities, met with utility representatives directly, and evaluated input provided to the Commission directly by ratepayers and representatives of government agencies. We participated in after-action reviews of the storm conducted by federal and state governments. On December 29,

[3] *1998 Ice Storm Order.*

[4] *1998 Ice Storm Order* at 7.

1998 we issued a comprehensive order, detailing the problems with the utilities' response to the storm and our recommendations on needed improvements. We found that the storm overwhelmed most utilities' emergency plans and that utilities improvised where those plans failed to provide adequate guidance. We made specific recommendations covering a broad range of issues with the hope that all utilities would voluntarily implement measures to ensure a swifter and more effective response to future storms.

The following recommendations made in the *1998 Ice Storm Order* are germane to our examination of the utilities' response to Winter Storm 2002:

1. Utilities should arrange to receive severe weather forecast alerts from the National Weather Service or other competent sources.[5]

2. Every public utility operating in Maine should have a written emergency restoration plan (ERP). Those utilities that have not yet developed written ERPs should develop them. ERPs should include, as first steps, guidelines for setting priorities for restoring services, managing restoration efforts, and communicating with customers. ERPs should be reviewed and approved by senior utility management.[6]

3. ERPs should be tested through periodic drills conducted by each utility.[7]

4. Public utilities whose services depend on the availability of utility-provided power at remote field sites should develop contingency plans addressing loss of power to those sites for an extended period of time, and incorporate those contingency plans in their emergency restoration plans.[8]

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[5]Recommendation IV-1, *1998 Ice Storm Order* at 37.

[6]Recommendation III-2, *1998 Ice Storm Order* at 22.

[7]Recommendation III-6, *1998 Ice Storm Order* at 24

[8]Recommendation II-2, *1998 Ice Storm Order* at 14.

5. Utilities should ensure their emergency restoration plans address specific needs for backup power supplies, consistent with established industry guidelines.[9]

6. All utilities should install alternative power supplies for their facilities and equipment needed to restore service to customers (e.g., garages, pump stations, standpipes, fuel stations, remote switching equipment, etc.).[10]

7. When electric utilities activate emergency centers to coordinate response to natural disasters such as the ice storm, they should notify both NYNEX [Verizon] and the Telephone Association of Maine (TAM) and invite each organization to provide a liaison at their emergency control centers during restoration activities.[11]

8. Electric utilities should arrange with other utilities (e.g., water and telephone utilities) for direct contact to provide restoration and work estimates to those utilities when they cannot restore their own services due to a lack of utility-provided power.[12]

9. All utilities should establish continuing emergency liaison procedures with state, county, and municipal emergency management officials so that those officials are aware of each utility's capabilities and needs during emergency situations. [13]

10. Utilities should improve provision of restoration information to customers during major outages, through improvements to existing systems where possible. [14]

11. Utilities should develop a better process for keeping customers informed of restoration progress. [15]

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[9]Recommendation III-3, *1998 Ice Storm Order* at 22 (footnote omitted).

[10]Recommendation IV-15, *1998 Ice Storm Order* at 50.

[11]Recommendation IV-14, *1998 Ice Storm Order* at 50.

[12]Recommendation IV-14, *1998 Ice Storm Order* at 50.

[13]Recommendation IV-3, *1998 Ice Storm Order* at 43.

[14]Recommendation IV-19, *1998 Ice Storm Order* at 56.

[15]Recommendation IV-27, *1998 Ice Storm Order* at 62.

We also found that many utilities conducted internal assessments of storm activities after Ice Storm 1998, and that those assessments were almost uniformly correctly focused and appropriate. We recommended that utilities adopt the suggestions reflected in those assessments and share storm-related experiences and recommendations with other utilities.[16]

Finally, we stressed the need for government to have "accurate and timely information about infrastructure damage and restoration plans" during emergencies involving utilities, and identified a number of failures of communications that hampered recovery from Ice Storm 1998. We identified data collection and reporting as a key element of such communications, and determined that we would improve the Commission's own capability to receive utility notifications related to outages and restoration activities.[17]

B. Winter Storm 2002

The winter storm that occurred in mid-coast Maine during the third week of January 2002 (Winter Storm 2002 or the Storm) affected utility services to many Maine consumers. In particular, the Storm interrupted electric service to more than 70,000 Maine citizens in central and southern Maine. The lack of electricity in these areas also adversely affected telecommunications services. Despite utilities' restoration efforts, services were interrupted for a number of days in some areas. Three of the largest public utilities, BHE, CMP, and Verizon

[16] *1998 Ice Storm Order* at 2-3.

[17] *1998 Ice Storm Order* at 41-45.

each reported lengthy average outage durations of 24 hours or more. Accordingly, this Investigation focused primarily on these three utilities' preparation, response, and communications related to the storm.

1. Weather[18]

Maine offices of the National Weather Service (NWS) began issuing advisories about the Storm two days before it struck. NWS Caribou issued a Special Weather Statement at 2:45 p.m. on Friday, January 11th that called for "a good chance" of "significant winter weather" on Sunday. NWS Caribou posted a Winter Storm Watch at 4:00 a.m. Saturday, January 12th and escalated that advisory to a Winter Storm Warning at 2:45 p.m. Saturday afternoon. The forecast issued at 3:46 a.m. Saturday, January 12th by the NWS in Gray called for a wintry weather mix on Sunday for southern and western Maine. NWS Gray posted a Winter Storm Watch at 3:15 p.m. Saturday, and issued a Winter Storm Warning at 2:35 a.m. on Sunday, January 13th. NWS forecasts described the event as a "powerful winter storm" with potentially "high impact."

As predicted, the Storm arrived in the area early on Sunday, January 13th, and brought heavy snow, mixtures of snow and rain, blowing and drifting snow, and near blizzard conditions in some coastal areas, with strong winds, especially near the coast. By Sunday night, the precipitation had diminished in most areas. Winds accompanying the Storm tapered off on

[18]Weather forecasts, Special Weather Statements, Winter Storm Watches, Winter Storm Warnings and related information concerning this storm were provided to the Commission by the National Weather Service offices in Caribou and Gray, Maine.

Monday, January 14th. The areas most affected by the Storm were in mid-coast Maine.[19]

2. Utility Outages[20]

Three transmission and distribution utilities served the affected area: Eastern Maine Electric Cooperative (EMAC), CMP and BHE. CMP and BHE reported that the Storm interrupted service to their consumers on average from 23.92 hours for CMP to 44 hours for BHE, while EMEC reported an average outage of 7 hours. The longest reported electric service interruptions to consumers ranged from 47 hours EMEC, to 146 hours for BHE**,** to 193 hours for CMP. The utilities reported that the Storm caused outages to an estimated 60,000 CMP customer accounts, 10,000 BHE customer accounts, and 5,000 EMEC customer accounts. However, as we discuss in more detail below, the utilities' figures likely underestimate the number of customer accounts because many customers could not get through to the electric utilities to report their outage because they had also lost telephone service or because the electric utilities' telephone systems were impaired.

[19]Attachment A lists Maine counties and public utilities in the areas most affected by the storm.

[20]The data reported in this section comes from the utilities' responses to Question 1 of Advisors' Data Request No. 1. In addition to the outages described in this section, one natural gas Local Distribution Company within the area affected by the storm (Bangor Gas) reported that the storm did not affect its service to consumers. Of the 12 water utilities in the affected area responding to discovery, only one reported an affect on its service to consumers. The Waldoboro Water Department (operated by Consumers Maine Water Company) reported that "some high elevation customers reported low water pressure as the storage tank level dropped" before the utility could re-power a well pump by a generator "within 90 minutes," but that it does not believe that any consumers lost service completely during the event.

Seven Incumbent Local Exchange Carriers (ILECs) provide local telephone service to consumers in the area affected by the storm. These ILECs reported that average service interruptions ranged from 2 hours (Lincolnville Telephone Co. and Tidewater Telecom) to 30 hours (Verizon), with the longest outage duration ranging from 4 hours (West Penobscot Telephone Co.) to over 246 hours (Verizon). Due to a lack of accurate records (which will be further explained below), we do not know the exact number of Verizon customers who lost phone service during the Storm but we estimate over 11,750 were without service for some amount of time.[21]

3. Concerns of Emergency Management Officials

During and shortly after the Storm, the Commission received inquiries and complaints from elected officials and emergency management directors related to utility response to the Storm, and related communications problems that arose between utility and emergency management personnel.[22] For example, the Director of the Waldo County Emergency Management Agency and senior staff of the Maine Emergency Management Agency (MEMA) telephoned Commission Staff on Tuesday, January 15, 2002, to report that they were unable to obtain necessary information about telephone service outages in the affected area to support their management of the emergency in the area, and requested that Staff facilitate such communications. During later meetings,

[21]See section V.C.2.a *infra.*

[22]See, e.g., complaint letter to CMP from Selectmen of South Bristol, January 30, 2002, copied to the Commission.

MEMA staff and the Director of the Waldo County EMA expressed concern that they had been unable to contact either CMP or Verizon to coordinate emergency response, although mechanisms for such coordination had previously been established. CMP subsequently acknowledged that some of its previous coordination plans contained incorrect contact information.[23]

III. LEGAL STANDARD AND PROCEDURAL HISTORY

The basic purpose of regulation by the Public Utilities Commission is to assure safe, reasonable and adequate service at rates which are just and reasonable to customers and public utilities. 35-A M.R.S.A. § 101. Maine law further requires that "[e]very public utility shall furnish safe, reasonable and adequate facilities and service." 35-A M.R.S.A. § 301(1). The Commission "may on its own motion, with or without notice, summarily investigate . . . any matter relating to a public utility . . . " 35-A M.R.S.A. § 1303(1)(c). The Commission may also conduct a subsequent formal investigation if, after the summary investigation, the Commission finds sufficient grounds exist. 35-A M.R.S.A. § 1303(2).

Thus, on March 26, 2002, we opened this Investigation pursuant to 35-A M.R.SA. §1303 into the adequacy of public utility services during and after Winter Storm 2002. We initiated this Investigation to determine the adequacy of

[23]CMP letter to the Commission Staff Steve Dunn, March 11, 2002, at 2.

utility services during events that interrupt electric power service, and in particular, the adequacy of telephone service during power outages.

In our Notice of Investigation, we specifically stated our intent to focus on the adequacy and effectiveness of telephone equipment batteries, other backup power supplies for both telephone and other utilities, power restoration plans, and on ways to improve service. We stated our intent to assess how effectively Maine telephone and electric utilities are working together to coordinate restoration of power to susceptible facilities, and stated that we would examine communications between those utilities and emergency management officials. Because the footprint of the Storm did not cover the entire state, we limited the scope of this investigation to the nine Maine counties in which the storm had the greatest effect, and the public utilities operating within those counties.

The Commission Staff conducted written discovery of utilities in the affected areas and held five Technical Conferences at which additional oral discovery was conducted.[24]

V. VERIZON

Telephone customers lost service during Winter Storm 2002 because telephone cables (pole lines) and drop lines[25] were severed or because electronic Digital Loop Carrier (DLC) systems lost power and went out of

[24]Verizon on July 18 and November 15, 2002; Central Maine Power Company (CMP) on November 7, 2002; Bangor Hydro-Electric Company (BHE) on November 21, 2002; and emergency management officials, Verizon, BHE, and CMP on December 18, 2002.

[25]Drop lines connect customer premises to their nearest poles.

service. Verizon's average and maximum customer outage times (30 hours and 10 days, respectively) were the highest, by far, of all utilities affected by the Storm and suggest: (1) Verizon did not prepare well for the Storm; (2) Verizon did not dedicate sufficient maintenance and repair personnel or resources; and/or (3) Verizon's management of service maintenance and restoration work was not adequate.

We do not know the exact number of outages that occurred because of a lack of data. We estimate that over 11, 750 customers lost service for some amount of time.[26] In addition, Verizon's performance in carrying out and managing cable and drop line repair work may not have been adequate, however, the Commission's investigation did not focus on those activities. Instead, motivated by information and complaints by county and state emergency management officials provided after the Storm, the Commission focused its investigation on Verizon's preparation for the Storm, Verizon's communication with emergency management and other utilities, and Verizon's performance in managing the maintenance and restoration of power to its Digital Loop Carrier (DLC) systems.

A. Preparation

As we describe below, we find that Verizon did not properly prepare for Winter Storm 2002 due to: (1) its failure to accurately anticipate the severity of the Storm and promptly activate storm operations and restoration plans; and (2) its failure to follow our recommendations from the *1998 Ice Storm*

[26] See Section V.C.2.a *infra.*

Order relating to the development and implementation of emergency response plans.

1. Failure to Anticipate Storm

As we have already discussed, it was clear by Saturday afternoon January 12th that a strong storm likely to cause outages would be hitting Maine on Sunday, January 13th. Indeed, ultimately the storm tore thousands of telephone drop lines from poles,[27] over 5,483 trouble reports were filed with Verizon, and thousands of customers lost their phone service. Despite these facts, Verizon witness Richard Powell, Manager of the Dispatch Resource Center described Sunday January 13th as "not atypical" and claimed there was no reason to have any more than the usual 17 outside plant technicians working that day.[28] He also stated that Verizon's practice is to wait until the storm winds down before mobilizing repair crews.[29]

Verizon's Network Control Center in Manchester, New Hampshire has a large video screen showing National Weather Service information. Additionally, the local Dispatch Resource Center watches weather conditions for Maine and keeps local field managers aware of potential abnormal weather events that might dictate the need for supplementing the workforce to meet increased trouble load.[30] The use of ACCUWEATHER web sites as well as

[27]Response to Advisors' Data Request (ADR) 1-3.

[28]Tr. 7/18/02 at 34.

[29]Tr. 7/18/02 at 75.

[30]Tr. 7/18/02 at 35.

many others is common practice.[31] While there is no specific affirmation on the record, we expect that the NCC was aware of the forecasted storm on January 12th. Indeed, Verizon admits that the Storm was forecasted as early as Friday but that because the Storm was several days away, Verizon did not take any extraordinary measures in preparation for the Storm, other than gassing and fully stocking its repair trucks, generators, and equipment.[32]

Mr. Powell testified that alarms indicating power and telephone outages did not start coming in to the Network Control Center until late in the day on Sunday, January 13th.[33] He also testified that Verizon did not see an increase in trouble reports until Monday.[34] A review of the data provided during discovery paints a different picture. Trouble report records show 481 trouble reports were made on Sunday alone – well above what one would expect on a normal Sunday.[35] They also indicate that Verizon's computerized network monitoring systems began receiving alarms which required the dispatch of technicians beginning at 2:40 p.m. on Sunday.[36] Indeed, 58 work orders or "MAs" were issued prior to 9:00 p.m. on January 13th, yet Verizon waited until

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[31]Response to Oral Data Request (ODR) 2-8 (Recommendation IV-1) from the 11/15/02 Technical Conference.

[32]Tr. 11/15/02 at 111.

[33]Tr. 7/18/02 at 35.

[34]Tr. 7/18/02 at 86.

[35]Response to ADR 1-3; Response to ODR 2-2 from the 11/15/02 Technical Conference; Tr. 7/18/02 at 32.

[36]Response to ODR 2-2 from the 11/15/02 Technical Conference, attachment B.

Monday morning to begin "collecting internal and external data identifying the extent of the damage to the network."[37] On Monday, as Verizon was analyzing the situation, an additional 2,617 trouble reports were made and 90 additional MA tickets were issued.[38] Finally, on Tuesday, January 15th, close to 48 hours after the storm began hitting Maine, Verizon assigned an expert in DLC systems, Frank Connolly, "to coordinate the already on-going efforts to maintain power to the various electronic components in the field that support various DLC systems"[39] and began requesting help from crews from New Hampshire and other areas of the State.[40]

2. Failure to follow its Emergency Response Plan

Verizon's preparation for Winter Storm 2002 would have been more effective if it had implemented previous Commission recommendations relating to emergency plans. Specifically, in the *1998 Ice Storm Order,* the Commission stated that it would be "a prudent utility practice" for utilities "to maintain and exercise" emergency response plans (ERPs) to address "all reasonably-expected emergency situations." [41] The Commission recommended that ERPs be written, and that they include restoration priorities,

[37]Response to ADR 1-3.

[38]Response to ODR 2-2 from the 11/15/02 Technical Conference.

[39]Decl. Of Frank Connolly at ¶ 4.

[40]Tr. 11/15/02 at 77.

[41]*1998 Ice Storm Order* at 22.

restoration management, and customer communications. The Commission also recommended that utilities periodically test their ERPs.[42]

Verizon maintains an Abnormal Events Procedures manual for use during emergencies.[43] Verizon witnesses Connolly and Powell both stated that they did not refer to that manual or other written ERPs during their management of Winter Storm 2002.[44] Further, Mr. Powell stated that Verizon does not have any other specific written service restoration procedures for storms, and does not believe that such written procedures are required because the principles are embedded in Verizon's daily operations.[45]

3. Conclusions

Verizon's preparation for Winter Storm 2002 raises serious concerns regarding Verizon's ability to respond in all emergency situations, not just weather-related occurrences. It is essential, given the events of recent years, that public utilities both anticipate and quickly respond to emergency situations. Verizon must improve its preparation for large-scale outages. First, it must take more proactive steps regarding staffing during large-scale outages. It should not take Verizon 3 days to get help from personnel in areas that are not affected by the outages. It should make arrangements ahead of time to be able

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[42]Recommendation III-6, *1998 Ice Storm Order* at 24.

[43]Response to ADR 5-10.

[44]Tr. 11/15/02 at 35-36, 113-114.

[45]Tr. 11/15/02 at 116-117.

to "call up" staffing from outside areas on an as-needed basis or have third-party contractors available. Nor should it take Verizon two days to assign a person to coordinate maintenance of power to digital loop carrier systems. Verizon should make such appointments ahead of time so that when an emergency or storm occurs, personnel will ready to assume their duties immediately.

Second, with regard to its ERP, while Verizon's ERP on file with the Commission may clearly state what *should* happen in an emergency situation, that verbiage becomes mere lip service if the ERP is not followed or utilized by Verizon in emergency situations. Verizon should take steps to ensure that it reflects the procedures it will use during outages. ERPs must be used routinely by both headquarters and field personnel responsible for managing utility emergencies or such management will not be effective, as reflected in Verizon's response to the Storm. We thus order Verizon to develop detailed emergency response plans to provide operational guidance during future emergencies, and maintain a copy of all such plans at the Commission.[46] We further order Verizon to review and test such plans annually through drills that involve personnel who would have responsibility for management of future emergencies in Maine, and provide the Commission with evaluations of those drills.

[46]If Verizon believes that it must maintain an emergency plan that contains only general policy statements but not operational planning guidance for management reference during emergencies, it should develop checklists or abbreviated versions of portions of the ERP that would readily available and useful to personnel during outage situations.

B. Communications

1. Relevant *1998 Ice Storm Order* Findings

In the *1998 Ice Storm Order*, we identified communication of information during prolonged outages as one of the most important areas that needed to be improved. We found that, "for utilities, their customers, government, the public generally, and the media" communication of information about "what had occurred, what was necessary to restore service, and what customers could expect about service restoration" was essential.[47] We specifically called for utilities to "establish continuing emergency liaison procedures with state, county, and municipal emergency management officials."[48] The Commission also encouraged utilities to develop procedures to quickly notify the state emergency operation center about infrastructure damages, areas affected, and anticipated time needed to repair and restore operations.[49] Finally, based on electric, telecom, and water utilities' experience during Ice Storm 1998, we urged utilities to establish communications channels between themselves.[50]

2. Communications With Emergency Management Agencies

In some areas, both telephone and electric services were disrupted for days. During such prolonged outages, it is essential that the local

[47] Recommendation IV-3, *1998 Ice Storm Order* at 43.

[48] Recommendation IV-3, *1998 Ice Storm Order* at 43.

[49] Recommendation IV-3, *1998 Ice Storm Order* at 43, 77-78.

[50] *1998 Ice Storm Order* at 48-50.

emergency management agency be advised of the situation so that they may take steps at the local level to ensure the public safety.[51] If a citizen is without telephone service during a major storm, they will have no way of advising their local officials of that fact. Thus, Verizon must step forward and provide detailed information regarding outages to state and local emergency management. It is not enough, as Verizon did in Winter Storm 2002, to simply state that "the Verizon External Affairs organization is available to any public officials to assist in providing information concerning restoration efforts."[52] This is especially true when, as was the case during Winter Storm 2002, emergency managers are not provided with information on how to contact Verizon in such circumstances.[53]

Pursuant to the terms of its E911 contract with the state, Verizon notifies the State Emergency Services Communication Bureau (ESCB) when the E911 system is directly impacted.[54] However, Verizon does not take similar steps when local conditions impact the ability of some customers to contact emergency services.[55] Indeed, it appears that Verizon had no direct contact at the corporate management level with state or county emergency

[51] *1998 Ice Storm Order* at p. 41.

[52] Response to ADR 5-3 at 4; Response to ODR 2-8 from the 11/15/02 Technical Conference.

[53] Tr. 11/15/02 at 128; Response to ADR 1-21.

[54] If a local telephone company experiences a "significant" network failure that affects E911 services, the carrier notifies the Verizon E911 Service Response Center which in turn notifies the ESCB and affected PSAPs. Response to ADR 1-20.

[55] Tr. 7/18/02 at 89; Tr. 12/18/02 17-18; 21-22; 26.

management personnel during Winter Storm 2002.[56] MEMA did not get any notices, press releases or other information from Verizon.[57] Further, the Waldo County EMA stated that it had no specific contacts at Verizon to call for updated information.[58] This lack of communication directly contradicts the Commission's 1998 *Ice Storm* recommendation that Verizon keep the state emergency response center advised of outages.[59]

It is clear that mere recommendations from the Commission are not sufficient motivation for Verizon to change its policies. Thus, we *order* Verizon to make proactive contact with both MEMA and county EMAs during emergencies and wide-spread, multi-day outages events. Verizon must communicate detailed information concerning outages, the expected duration of the outage, and restoration priorities.[60] To ensure compliance with this directive, we order Verizon to copy the Commission on all such communications.[61]

Verizon must also provide communication channels for county emergency personnel to contact Verizon during emergencies and wide-spread, multi-day outages. In order to ensure compliance with this directive, we

[56]Tr. 12/18/02 at 31; Response to ADR 1-21.

[57]Tr. 12/18/02 at 31.

[58]Tr. 12/18/02 at 26-27.

[59]Tr. 12/18/02 at 17-18.

[60]Tr. 12/18/02 at 30.

[61]The information should be provided to the Commission following the Contact Protocol issued by the Acting Director of Technical Analysis on December 30, 2002 in Docket Nos. 96-480 and 87-154 and any successor document.

order Verizon to file with the Commission copies of all agreements reached with state and county emergency management personnel and/or copies of letters to such persons providing detailed contact information for Verizon to be used during outages and emergencies.

3. Communication With Other Utilities

During Winter Storm 2002, Verizon had no direct contact with other utilities at a corporate management level.[62] Verizon claimed in its data responses that when commercial power goes out, the NCC will call the transmission and distribution (T&D) utilities to get an estimated time of restoration.[63] However, Verizon witness Powell stated that between Sunday, January 13th and Tuesday, January 15th, there were no discussions between Verizon and the T&D utilities.[64] He also stated that there must have been discussions at the local level,[65] though there is no record of any such discussions.[66] BHE witness Platt stated that during Winter Storm 2002, he had no contact with Mr. Powell.[67] Mr. Platt also stated that BHE had a critical

[62]Response to ADR 1-21.

[63]Response to ADR 1-20.

[64]Tr. 11/15/02 at 62.

[65]Tr. 11/15/02 at 78.

[66]Response to ADR 1-21.

[67]Tr. 11/21/02 at 95.

customer dedicated line for other utilities but that Verizon did not use it.[68] Finally, as noted earlier, CMP had no corporate management contact with Verizon.

Thus, it appears that the only communication between Verizon and T&D utilities during Winter Storm 2002 may have been done on a local garage level. While such communication is important and necessary, communication at higher levels is also important and necessary. T&D utilities depend to a large extent on telephone calls from customers to assess the extent of power outages, and the failure of telephone networks are "very problematic" to them.[69] We find the lack of communication troubling and contrary to the recommendations of our *1998 Ice Storm Order*. As we have previously stated, a lack of communication between utilities delays restoration of services and may impact the public health and safety.[70]

While the *1998 Ice Storm Order* focused on the need for T&D utilities to reach out to the telephone companies, Verizon must realize that communication is a two-way street and that it cannot wait passively for information during times of emergency. Verizon must take more proactive steps to stay in closer contact with other utilities during wide-spread, multi-day events. We understand that some efforts are already underway and that during a recent storm, BHE made direct contact with Mr. Powell at Verizon concerning

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[68]Tr. 11/21/02 at 95.

[69]Tr. 11/21/02 at 55-56 and 73-74.

[70]*1998 Ice Storm Order* at 48. During the Ice Storm of 1998, lack of coordination led to additional damage to facilities not directly damaged by the storm.

restoration issues. To ensure that these efforts are maintained, we order Verizon to reach agreements with all T&D utilities in its service area concerning how, at what levels, and through what specific channels communication will take place during storm and emergency situations. Verizon must file copies of the agreements at the Commission by **November 30, 2003**.

C. Restoration

Prompted by concerns expressed after Winter Storm 2002 by county and state emergency management officials, we have focused much of our investigation of Verizon's response to the Storm on its performance in managing the maintenance and restoration of power to the hundreds of electronic Digital Loop Carrier Systems it has in the areas affected by the Storm.

Telephone companies install DLC systems in their local exchange networks to reduce the cost of providing service to homes and businesses that are long distances from the companies' central office switching machines. Approximately 30% of Verizon's customers are served by DLCs.[71] To operate, i.e. to provide dial tone to customers, DLCs rely on commercial power, or, when that fails, on backup battery power. If a DLC's batteries go dead before commercial power is restored, the customers will lose dial tone. Under normal circumstances (normal weather, normal calling volumes), DLC batteries may provide power for approximately 8 hours; but cold weather and emergencies like

[71]Response to ADR 5-4.

the Storm can generate abnormally high calling volumes, and can quickly drain the batteries' power.[72]

It is significant that no Independent Telephone Company customers[73] served by DLCs lost dial tone during the Storm, which is a credit to the six companies' efforts to keep their DLCs' batteries from losing power. Unfortunately, the same cannot be said for Verizon, as thousands of its customers who are served by DLCs did lose dial tone during the storm.[74] These Verizon customers' telephones went dead not because of downed cable or drop lines, but because, and only because, the DLCs that provide their service lost power, then lost back-up battery power, and went dead.

As will be described below, the Commission has a long history of concerns relating to DLCs and their power sources. Despite repeated recommendations and warnings by the Commission, substantial numbers of Verizon customers lost their telephone service during the Storm due to DLC-related issues. In addition to Verizon's failure to follow earlier Commission recommendations, we have uncovered several factors contributing to the DLC problem.

First, although Verizon records DLC locations, the number of customers each DLC serves, and the times when a DLC both loses and regains

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[72]Tr. 7/18/02 at p. 59.

[73]*See* Attachment A.

[74]Response to ODR 1-4 from the 7/18/02 Technical Conference.

commercial power and battery power,[75] Verizon could not provide the Commission with the outage-related data it needed to accurately assess its management of DLC power maintenance and restoration during the Storm. In addition, this failure to provide specific DLC outage information impacted the accuracy of Verizon's outage reporting to the Commission and the calculation of its Service Quality Index. Second, Verizon's actual management of DLC restoration was reactive, leading to at least a two-day delay in assigning personnel with recognized DLC expertise to manage maintenance and restoration of power to DLC sites. Finally, Verizon made no effort after the storm to assess for itself how many of its customers served by DLCs lost service, how often, and for how long.[76]

1. Previous Commission Concerns Regarding DLCs

We have repeatedly expressed concerns about the dependence of modern telecommunications services on electric power. Both our Staff and the Federal Emergency Management Agency highlighted this vulnerability in assessments relating to the impact of Hurricane Bob on New England in August 1991. We again focused on this issue during our *Ice Storm 1998* inquiry where we made the following specific recommendations addressing that issue:

(a) Public utilities whose services depend on the availability of utility-provided power at remote field sites should develop contingency plans addressing loss of power to those sites for

[75]Tr. 7/18/02 at 57-60.

[76]Tr. 11/15/02 at. 76.

an extended period of time, and incorporate those contingency plans in their emergency restoration plans.[77]

(b) Utilities should ensure their emergency restoration plans address specific needs for backup power supplies, consistent with established industry guidelines.[78]

(c) All utilities should install alternative power supplies for their facilities and equipment needed to restore service to customers (e.g., garages, pump stations, standpipes, fuel stations, remote switching equipment, etc.).[79]

In our inquiry about Maine utilities' readiness for the Year 2000 (Y2k) transition, we restated our concerns about this issue:

> We are especially concerned that utility plans consider possible interruptions of services provided by other utilities (e.g., electric and water utility SCADA systems dependent on the public switched telephone network, and remote telecommunications and pumping facilities dependent on commercial power).[80]

Six months prior to Winter Storm 2002, we once again stressed the importance of this issue. In June 2001, commercial power failures reportedly interrupted service to an E-9-1-1 Public Safety Answering Point (PSAP) in York County, which is served by a Verizon DLC system. State and county emergency management directors requested our assistance in addressing that apparent vulnerability. In an inquiry by our Staff, Verizon identified the problem as an incompatibility between certain DLC system batteries and their chargers, which

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[77] Recommendation II-2, *1998 Ice Storm Order* at 14.

[78] Recommendation III-3, *1998 Ice Storm Order* at 22.

[79] Recommendation IV-15, *1998 Ice Storm Order* at 50.

[80] Inquiry into the readiness of Public Utilities in Maine for Year 2000 Issues, Docket No. 1998-650, Notice of Inquiry (Sept. 1, 1998) at 2 (emphasis added).

caused the affected DLCs to go dead in less than an hour. (DLC batteries are designed to provide 8 hours of power, nominally.) Shortly before Winter Storm 2002 occurred, we once again expressed concern that Verizon telephone service, including E-9-1-1 service, could be interrupted shortly after a commercial power failure, with potentially significant consequences.[81]

Although DLC reliance on commercial power was an issue about which the Commission has expressed specific concern for over a decade, Verizon could produce no evidence during this Investigation that it took any action to implement the Commission's recommendations on that issue: "No reports, memoranda, and other written materials are known to exist."[82] As will be described below, despite Verizon's claims that it had "strategically deployed" backup generators for DLCs throughout the State and that had it had enough generators,[83] thousands of Verizon customers lost telephone service due to the failure of DLC batteries. Because Verizon has not carried out many of the Commission's prior recommendations, we will refrain from making additional recommendations and instead order that specific action be taken on a number of issues. We also order Verizon to file a report with the Commission within 90 days of this Order describing actions taken to comply with the Commission's *1998 Ice Storm Order*.

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[81]Letter from Chairman Welch to Edward Dinan, President, Verizon – Maine, January 7, 2002.

[82]Response to ADR 5-4.

[83]Tr. 7/18/02 at 98.

2. Record-Keeping and Reporting Problems

a. DLC Monitoring and Record-Keeping Systems

Verizon uses computerized systems to monitor, in real time, the performance of its DLCs. These systems allow Verizon to detect and record when a DLC loses commercial and battery power, and when the DLC regains commercial or battery power. Because Verizon also knows how many customers each DLC serves, if a DLC loses battery power, Verizon should know, or at least have the data to know, how many customers are out of service and for how long.

According to Verizon, it uses two general types of DLC systems in Maine: "universal" (analogue) DLCs and "integrated" (digital) DLCs. Verizon maintains a different computerized monitoring system for each type: the Network Monitoring/Analysis system (NMA) for universal DLCs and the Network Fault Management system (NFM) for integrated DLCs. Because Verizon has a practice of re-using its NMA system's magnetic tapes every 60 days, by the time the Commission opened this Investigation, Verizon had already re-used, and therefore erased, the tapes that contained the universal DLC outage data the system had recorded during the Storm.[84]

As for outage data from Verizon's NFM system, which monitors its integrated DLCs, Verizon first reported that, like the NMA system's universal DLC outage data, the NFM system's outage data also was lost, as a

[84] Response to ADR 1-8.

result of a "corrupted logging tape."[85] Verizon later corrected that report,[86] and indicated that although no tapes containing outage data recorded during the ice storm were corrupted, because of limitations in the NFM system, Staff's questions about DLC outage impacts on customers could not be answered without "exhaustive manual efforts."[87] According to Verizon, the computer programs that operate its DLC monitoring systems and databases were not designed to allow DLC performance data to be easily retrieved and analyzed. Instead, these systems were designed to detect when network equipment (including DLCs) indicate faults, to issue electronic "trouble tickets" (called MA tickets) to the local technician dispatch center, and to detect when faults have been resolved.[88] The NMA system covers Verizon's facilities in Rhode Island, Vermont, New Hampshire, and Maine. According to Verizon, extracting Maine-specific NMA data, even if it were still available, would require an extensive manual effort. Maine-specific NFM (integrated DLC) system data, which is archived with the other states' data, can be retrieved, but "in raw form," which requires a knowledgeable person to go over every piece of paper and correlate different events, different alarms, etc.[89]

Thus, because of limitations in Verizon's computerized DLC record-keeping systems and record-retention practices

[85]Response to ADR 1-8.

[86]Tr. 7/18/02 at 30-32.

[87]Response to ADR 1-8.

[88]Tr. 7-18-02 at 10-40.

[89]Response to ODR 1-1 from the 7/18/02 Technical Conference.

described above, Verizon has been unable to answer Staff discovery questions related to DLCs, such as how many of its customers served by DLCs lost service and for how long; and how many DLCs lost battery power, for how long, and how often.[90] As a result, the Commission has been unable to make a complete assessment of the Storm's impact on Verizon's DLC-served customers or on its performance in maintaining and restoring service to them. We know Verizon had 1158 DLCs in the storm-affected area, but we do not know – because the Company has been unable to tell us – exactly how many DLCs went out of service.[91] The best estimate the Commission has of the impact on customers served by Verizon DLCs in the storm-affected area is that 97 DLCs, in 37 wire centers, went out of service, which caused 11,750 customer lines to lose dial tone.[92] Verizon has provided no data on how long those DLCs were out of service. Further, because Verizon did not retain the "universal" DLC outage data, we do not know how many customers served by its universal DLCs lost service.[93]

Given the state of development of computer-based data retrieval and analysis, we find unacceptable that retrieval of Maine-specific DLC outage data (such as numbers of customers out of service, durations of

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[90]Responses to ADR 1-8; 1-9; 1-11; 1-12; and 1-15.

[91]Response to ADR 1-9.

[92]Response to ODR 1-4 from the 7/18/02 Technical Conference.

[93]The outage data for the 97 DLC systems that failed came from Verizon's Network Fault Management System, which monitors only its "integrated" DLCs.

outages, locations of out-of-service DLCs) still requires Verizon to make "exhaustive manual efforts." For this means not only that Verizon cannot respond to Commission questions on the impact of DLC outages on customers, but, more importantly, that Verizon cannot practically answer such questions for itself.

As we indicated above, whenever DLCs lose power and then lose back-up battery power before commercial power is restored, customers served by those DLCs lose dial tone. We are aware that Verizon uses DLCs to reduce the cost of providing service to customers' homes and businesses that are not close to their central offices. The Commission does not believe, however, that those customers should have to accept loss of service – in effect, a markedly reduced quality of service and level of safety – whenever their DLCs lose commercial power and their back-up batteries go dead. Verizon must sufficiently enhance the management of its DLC service maintenance work and its DLC back-up power maintenance procedures and resources, to prevent customers served by its DLCs from losing dial tone solely due to loss of commercial power. Thus, we order Verizon to file a plan that will accomplish that goal. The plan must cover all Verizon DLCs in Maine and contain enhancements Verizon will make in the above areas that are designed to prevent customers its DLCs serve from losing dial tone during extended outages.

b. DLC Outage Reporting to the Commission

During the course of this Investigation, several issues relating to outage reporting to the Commission were discovered. Under the terms of its Alternative Form of Regulation (AFOR),[94] Verizon is required to file a service quality report on a monthly basis which includes metrics that measure customer outages and other service troubles. Obviously, it is essential that customer outages be accurately recorded. We have learned in this Investigation that, even though Verizon has records of how many customers its out-of-service DLCs serve, unless those customers find a way to call Verizon and report their loss of dial tone, the DLC related outages are not accounted for in its service quality reports to the Commission. More specifically, Mr. Powell testified that the data reported under the AFOR relating to the Storm reflects only the service troubles of customers who were able to call and report them to Verizon's repair service center.[95]

Until the plan we ordered in paragraph 2.a. above proves to be successful, we believe the number of customers served by DLCs that Verizon verifies to be out of service should be designated as "service troubles" and reflected in the relevant measurements in Verizon's Service Quality Index (SQI). Therefore, we will order Verizon to begin collecting DLC outage

[94]Currently, the Commission's Order establishing the most recent version of the AFOR has been vacated and remanded for further consideration by the Commission. Pending the outcome of those proceedings, Verizon is still subject to the service quality requirements. Investigation Into Verizon's Alternate Form of Regulation, Docket No. 99-851 (Order) July 11, 2003.

[95]Tr. 7/18/02 at 81-82.

data (number of customers losing service) with the ultimate goal of combining it with the Network Trouble Report and Service Outage data sources when we next reset those SQI metrics' performance baselines.

The second issue uncovered in our Investigation was the general lack of reporting of outages to the Commission. Chapter 200 requires outages to be reported "as soon a possible, but no later than within twenty-four hours."[96] Commission guidance issued pursuant to Chapters 200 and 130 calls for utilities to provide notice "as soon as the utility becomes aware of a reportable incident (generally within one hour) and states that notice should not be delayed until all details can be confirmed or restoration estimates can be developed."[97] Verizon, as it did during Winter Storm 2002, often provides such notices well after the required time.[98] In addition, Chapter 200 requires Verizon to file a report if an outage affects at least 500 lines for at least 5 minutes in all parts of Verizon's service territory affected by the events causing the outages. While the Commission may waive these reporting requirements, it did not do so during Winter Storm 2002 nor did Verizon request a waiver.

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[96]MPUC Rules, Ch. 200, Sec. II.B.

[97]Letter from Faith Huntington, Acting Director, Technical Analysis Division, to Public Utilities with Facilities in the State of Maine, November 2001, at 2; also: Rulemaking: Chapter 130, Safety and Accident Reporting Requirements, Docket No. 96-480 and *PUBLIC UTILITIES COMMISSION Rulemaking: Reporting Requirements for Local Exchange Carriers, Chapter 20*, Docket No. 87-154, Contact Protocol (Dec. 30, 2002) at 2.

[98]For example, Verizon notified the Commission of an outage due to cable work in New Sweden, Maine, approximately 79 hours after an outage due to cable work occurred at 9:40a.m. Saturday, February 15. (Verizon Outage Report e-mailed from Verizon/Pamela Porell to puc.tel@maine.gov, February 18, 2002 at 3:53 p.m.)

On Monday, January 14th Verizon received 2,617 trouble reports from consumers.[99] On the afternoon of Tuesday, January 15th, Verizon submitted its only Customer Outage Report pursuant to Chapter 200 related to the Storm. The Report stated that 597 Verizon customer lines in the Monroe exchange had lost service for 47 minutes the previous evening due to loss of commercial power to that central office.[100] That same day, in answer to a Staff inquiry, Verizon stated that it had been "hit hard" by the storm, with over 2,600 service outages outstanding.[101] The following week, Verizon advised that the Storm had "resulted in approximately 7000 customer service troubles, the majority of which were downed customer drop wires."[102] Despite the fact that thousands of Verizon customers lost dial tone during the Storm, Verizon did not file any additional Chapter 200 outage reports relating to Winter Storm 2002 outages.

When questioned regarding the lack of outage reports relating to the Storm, Verizon relied upon its interpretation of our Chapter 200 reporting rules; namely, Verizon will file an outage report pursuant to Chapter 200 if, and only if, at least 500 customer lines are affected for at least 5 minutes *in a single exchange*, rather than in the entire part of its service territory the

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[99]Response to ODR 2-2 from the 11/15/02 Technical Conference.

[100]Verizon Customer Outage Report e-mailed from Verizon /Carole Williamson to puc.tel@state.me.us, January 14, 2002 at 4:00 pm.

[101]"Update on Storm Effects," e-mail from Staff member Joe Sukaskas to Commissioners Welch, Nugent, and Diamond, January 15, 2002, 4:32 PM.

[102]Letter from Verizon / Karen B. Romano to Joseph D. Sukaskas, January 22, 2002.

outage event affects. Verizon's interpretation of our Rules is incorrect. If an outage affects at least 500 lines for at least 5 minutes in *any* part of Verizon's service territory, be it one exchange or, as in this Storm, scores of exchanges, Verizon *must* file an outage report responsive to Chapter 200's criteria. Unless the Commission waives Chapter 200 or grants a waiver request, we direct Verizon to report all outages that meet Chapter 200's criteria.

In addition, if DLC customer outages are reportable under Chapter 200 or cause an outage event to be reportable, the number of DLC customers out of service for over 5 minutes must be accounted for in Chapter 200 outage reports. Thus, we order Verizon to make the necessary changes in its Chapter 200 outage data gathering and reporting.

3. Verizon's Management of Restoration

a. Dispatch Priorities

Verizon's repair center received 5583 trouble reports from its customers during this Storm. The daily counts were:[103]

Sunday, January 13th	481
Monday, January 14th	2617
Tuesday, January 15th	863
Wednesday, January 16th	653
Thursday, January 17th	431
Friday, January 18th	374
Saturday, January 19th	164

Verizon's Dispatch and Resource Center in Portland dispatched technicians based on 249 DLC trouble tickets ("MA" tickets) it

[103]Response to ODR 2-2 from the 11/15/02 Technical Conference; Tr. 11/15/02 at 82.

received from the Network Control Center. The daily counts of MA tickets dispatched were:[104]

Sunday, January 13th	72
Monday, January 14th	90
Tuesday, January 15th	34
Wednesday, January 16th	29
Thursday, January 17th	16
Friday, January 18th	7
Saturday, January 19th	1

Given the fact that at least 11,750 customer lines served by DLCs lost dial tone, these trouble report numbers indicate that a large number of the customers impacted by DLC-related outages did not or could not report their outage to Verizon.

The lack of customer trouble reports impacts proper management of restoration priorities because Verizon uses the order in which trouble reports are received to establish priorities for service restoration work.[105] While this approach may be reasonable for restoring service outages caused by downed cables and drop lines, it does not seem reasonable for restoring service to customers served by DLCs that are dead. DLC outages cause entire neighborhoods to lose service, which can make calling Verizon's repair service center to report the outage extremely difficult, especially during a weather emergency. (Cell phones may provide some assistance in reaching the repair service, but cell coverage in much of rural Maine is not consistently reliable.) It seems reasonable and fair, for example, that 96 customers with no dial tone

[104]Response to ODR 2-3 from the 11/15/02 Technical Conference; Tr. 11/15/02 at 82.

[105]Response to ADR 1-16.

because their DLC system is dead should have a higher restoration priority than 10 customer lines served by a downed cable, even if the cable's Trouble Report arrives before the DLC's Trouble Report ["MA" ticket]. *New* service installations for Verizon's business and carrier accounts have higher service dispatch priorities than *existing* out-of-service residence. Thus, installing *new* service for business customers takes priority over restoring service to Verizon's *existing* residential customers who have no dial tone.[106]

In addition, although Verizon states that its service provided to other public utilities is "critical,"[107] Verizon does not include other utilities in its dispatch priority matrix for restoration.[108] Thus, it is impossible to know whether other utilities are, in fact, given a high priority during restoration activities.

Accordingly, Verizon must file a revised priority matrix within 90 days of this Order which: (a) gives customers of out-of-service DLCs higher service restoration priorities than they have under the existing system based on the order in which customer trouble reports are received; (b) gives out of service residential customers priority over new installations for business customers during a storm or emergency events; and (c) gives restoration of service to other utilities a specific high priority position on the matrix.

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[106]Response to ODR-2-1, Attachment A: Dispatch Priority Matrix, from the 11/15/02 Technical Conference; Tr. 11/15/02, p. 46.

[107]Response to ADR 1-6.

[108]Response to ODR 2-8, Attachment A, from the 11/15/02 Technical Conference.

b. Management of DLC Maintenance and Restoration

Verizon asserts that it had sufficient personnel and equipment available to meet the demands of the severe snow and ice storm that occurred on January 13, 2002.[109] If that were completely true, then very few instances of DLC outage due to loss of battery power should have been expected. Yet, as indicated earlier, at least 97 DLCs went out of service and the 11,750 customers they serve lost dial tone.

The lack of records related to service outages of Verizon's DLC systems during the Storm has been a severe hindrance to a thorough analysis and evaluation of Verizon's actions in responding to storm-related troubles. The information that we have came from Verizon's responses to Staff data requests (such as ODR 4), Mr. Frank Connolly's affidavit, responses to questions at technical conferences, and anecdotal evidence from public officials and emergency management personnel in the storm-affected area. In spite of the lack of comprehensive data, we have been able to discern sufficient information to conclude that Verizon's DLC restoration efforts were inadequate, due to deficiencies in planning and preparation prior to the storm, lack of adequate information-dissemination systems, and failure to recognize the magnitude of the storm-related problems in a timely manner, with the corresponding failure to assign responsibilities for management of the restoration process to a competent person in a timely manner.

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[109]Tr. 11/15/02 at 16.

We do not mean to imply that any Verizon employee did less than an adequate job. All indications are that the opposite is true: Verizon employees worked long hours in difficult conditions to restore service as quickly and safely as possible. Our findings relate to the management of storm restoration and the systems, procedures, and resources that Verizon had in place to gather and assess the information necessary to manage the dispatch of technicians to maintain and restore services.

As indicated above, Verizon uses a comprehensive alarm system for monitoring the condition of its network, including its switches, interoffice (trunk) facilities, and remote terminal sites. Its Network Control Center receives various types of messages indicating when parts of the system are not functioning properly. The Network Control Center receives alarm signals from the Network Monitoring/Analysis system on universal DLC troubles and from the Network Fault Management system on integrated DLC troubles. Once alarms are received from DLC systems, both the Network Monitoring/Analysis and Network Fault Management systems generate maintenance ("MA") tickets, and a repair technician is dispatched if necessary based on the nature of the alarm because very little diagnosis or repair work on remote terminal sites can be done from the central office. [110] The dispatch of technicians is coordinated from Verizon's Dispatch and Resource Center in Portland.[111]

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[110]Tr. 7/18/02 at 38-39.

[111]Three Local Managers, each with a geographic area of primary responsibility, supported by numerous Administrative Assistants, report to the Dispatch and Resource Center manager, who in turn reports to the Director of Installation & Maintenance for Northern States. In

Verizon asserts that during a major area problem, like Winter Storm 2002, all members of the local workforce, plus additional personnel from nearby areas, or even from adjoining states, are deployed to meet the demands brought on by the storm event.[112] Verizon claims that the status of restoration activities is constantly being monitored by upper management, so that requests for additional resources (personnel or equipment) can be made expeditiously. For this Storm, Verizon brought in 43 technicians from New Hampshire.[113] However, because upper management did not make the request early enough, those NH technicians did not arrive until Tuesday, January 15th, almost 48 hours after the storm hit.[114]

Verizon states that it had sufficient generators available to maintain power to all its remote DLC sites.[115] The generators were either truck-mounted or portable and could be left at DLC locations until commercial power was restored. The generators are normally stored at Verizon's garages throughout its territory and transported to sites that lose

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addition, two Area Managers are responsible for the northern or southern Maine sections of Verizon's service territory. Local managers at each of Verizon's garage locations report to the Area Managers and handle the actual assignment of technicians to trouble reports and MA tickets. Technicians are assigned according to their level of experience and training. The Dispatch and Resource Center determines the priority of the dispatch needed and matches technicians based on availability and qualifications. Response to ADR 2-2.

[112]Response to ADRs 2-1, 2-3.

[113]Response to ADR 1-3.

[114]Tr. 11/15/02 at 77.

[115]Tr. 7/18/02 at 98.

commercial power and/or whose back-up batteries are running low.[116] As described in other parts of this Order, commercial power was severely impacted by Winter Storm 2002, with many downed poles and wires resulting in power outages to many of Verizon's DLC remote terminal locations. Each DLC site has an alarm system that indicates when commercial power has been lost and the site is operating on its back-up batteries. When the batteries reach a specified point of discharge, another alarm is sent to the Network Control Center. Before that point is reached, a technician should be dispatched to either replace the site's batteries with fully charged ones or install a portable generator that will begin to operate when the batteries are no longer capable of supplying sufficient power.[117] In theory, generators and recharged batteries should be moved throughout the service territory to maintain power at the DLC sites until commercial power is restored.

Unfortunately, the system described above operated in a less than optimal fashion. First, as explained previously, Verizon failed to summon in a timely manner sufficient repair technicians to deal with a storm of this magnitude. Based upon the fact that numerous DLC sites went dead, we believe that initially there were not enough technicians available to carry out the process of rotating fresh batteries or portable generators to the DLC locations. According to Verizon witness Connolly, when Verizon recognized that its DLC locations were in increasing jeopardy because of the loss of commercial power, it

[116]Tr. 11/15/02 at 30-31.

[117]Declaration of Frank Connolly at 3-4.

assigned him the responsibility of coordinating and managing the task of keeping the DLC sites running and restoring service to dead DLCs. Mr. Connolly is a Project Manager in Verizon's Construction Group and one of his current responsibilities is DLC trouble shooting. Thus, he was well qualified to perform the assignment he was given. Unfortunately, he was not given that assignment until the morning of Tuesday, January 15th. Although Verizon was unable to provide data to indicate the scale of DLC outages, it is apparent that Verizon knew from the alarms delivered by its Network Monitoring/Analysis and Network Fault Management systems on the first two days of the Storm that it was experiencing an escalating power failure rate at its remote DLC sites.[118]

According to Mr. Connolly's Declaration, he created and maintained a spreadsheet that showed the DLC sites that had lost commercial power, the time of the power loss, and any additional alarms that indicated that the back-up batteries were getting low or were dead. As each day of restoration progressed, he also made notes on the spreadsheet indicating the updated status of the DLC sites. From his knowledge of the network, Mr. Connolly decided which DLC sites were more critical, based on their size or location. He also knew the status and availability of the Company's truck-mounted and portable generators. Using the available information and his knowledge and experience, Mr. Connolly attempted to balance the resources at

[118]Response to ODR 1-4 from the 7/18/02 Technical Conference; Tr. 7/18/02 at 85-86.

his disposal to keep as many DLC sites as possible operating for as long as possible.

Despite his effort, Mr. Connolly admitted that he is unable to assert with certainty that he was completely successful at his assignment. Nor was he, nor was anyone at Verizon, able to provide us with enough information to evaluate his "success rate." When asked to estimate how many of the DLCs he was dealing with went out of service, Mr. Connolly indicated, as a best guess, it was probably 5 to 10.[119] Verizon's response to a Staff data request, however, indicated 97 DLCs went out of service.[120]

As indicated above, we do not know for sure how many DLC sites were out of service because of loss of power, nor do we have data on the numbers of lines associated with any universal DLC systems that lost service, or the duration of any DLC outage. Further, Mr. Connolly did not retain the spreadsheets that he used to coordinate the DLC power maintenance and restoration work. Those spreadsheets contained information on DLC performance that Verizon was unable to provide from its NFM and NMA monitoring systems, or from any other source in the Company. Again, the lack of this most fundamental DLC power loss data has made it impossible to completely assess the Company's performance in maintaining and restoring service to DLCs. Accordingly, we will order Verizon to develop a policy that will direct its employees during extended outages to retain, for one year, spreadsheets and

[119]Tr. 11/15/02 at 21.

[120]Response to ODR 1-4 from the 7/18/02 Technical Conference; Tr. 7/18/02 at 85-86.

work papers that contain data on DLC power losses, outages, outage durations, and locations, unless Verizon can make such data readily available from other sources.

Verizon appears to have a comprehensive organization in place to deal with routine and serious maintenance and restoration matters, such as those that took place during the week of January 13, 2002. However, that system was, and still may be, plagued by inadequate planning and preparation and a failure to recognize, early enough, the magnitude of the problems.

Verizon must make the upkeep of alternate power to its DLC systems a priority – a priority worthy of assigning personnel to coordinate back-up power maintenance for particular geographic areas. Verizon could have avoided, or at least mitigated, the problem of power loss by DLC systems by having sufficient personnel and equipment ready for the Storm, and by assigning Mr. Connolly, or someone equally competent, earlier, the responsibility of managing the task of maintaining and restoring power to the DLC sites. Personnel assignments should be in place at all times so that, in the event of an unexpected storm or other disaster, precious time is not lost deciding who, if anyone, will be responsible for managing the efforts to keep the DLCs powered.

In addition, Verizon must develop written documentation and procedures which provide the current location of all available generators by county (or other reasonable geographic subdivision) and which suggest possible rotations of generators if all commercial power is lost in the

geographic area. Verizon should file a copy of this documentation with the Commission no later than **November 30, 2003.** If additional generators are needed in order to ensure a feasible generator rotation plan, Verizon should acquire those generators by **January 1, 2004.**

4. Post-Storm Performance Assessment

Despite the widespread impact of this Storm (70 wire centers[121]), and despite the fact that at least 11,750 customer lines served by Verizon's DLCs lost service during the Storm, Verizon failed to conduct an assessment of how well it had prepared for the Storm, estimated its likely impacts, managed service maintenance and restoration efforts, and restored services to customers (especially those served by DLCs that lost battery power). Indeed, Verizon stated during a technical conference that no internal critique was necessary because they felt they did a good job.[122] Further, it appears that Verizon has not taken any steps to evaluate the effectiveness of its internal and external storm management communications, or of the data and reporting systems it relies on to assess outage impacts, establish restoration priorities and manage restoration efforts.[123]

Because timely self-assessments after a storm or unusual event can greatly inform both the Commission and Verizon about the successes and failures in emergency management, we will order Verizon to develop a policy

[121]Response to Staff 1-1.

[122]Tr. 11/15/02 at 76.

[123]Tr. 11/15/02 at 76.

that requires a formal assessment of its performance in restoring services, in maintaining power to DLCs, and in managing the personnel and resources that support those activities for all wide-spread, multi-day outage events. The assessment must be completed within 90 days after the event and filed with the Commission no later than 30 days later.

IV. ELECTRIC UTILITIES

A. Background

As indicated above, Winter Storm 2002 caused considerable amounts of damage to BHE's and CMP's electrical infrastructure. Storm damage began on Sunday January 13th around noon in the area of CMP's Alfred Service Center and continued to move up along the coast, where the majority of damage and outages occurred. Interior sections of the State experienced some outages but damage to systems away from the coast was limited and, as a result, restoration to these areas was relatively timely. However, along the coastline, from CMP's Brunswick Service Center to its Rockland/ Belfast offices, and BHE's Bangor and Hancock Districts, major damage was reported as a result of heavy wet snow and wind conditions. Despite utility restoration efforts, many customers' services (60,000 reported to CMP and 10,000 reported to BHE[124]) were interrupted for a number of days.

[124]Again, we believe these numbers are understated because of the difficulties customers had in reporting outages.

B. Preparation for the Storm

It appears from our review of the activities of CMP and BHE prior to Winter Storm 2002 that both utilities failed to correctly appreciate the severity of the forecasted weather and to mobilize their storm operations quickly enough to avoid system overloads. In addition, CMP did not have adequate written procedures in place to address monitoring of weather reports and escalation procedures, especially on weekends, while BHE personnel monitoring weather reports failed to escalate the matter in a timely manner. Finally, both utilities' storm plans were not effective -- CMP's Storm Plan contained incorrect contact numbers and contact names and BHE never put its plan into practice.

In our *1998 Ice Storm Order,* we recommended that utilities arrange to receive and monitor reports from the National Weather Service. It appears that both BHE and CMP have complied with this recommendation.[125] Both BHE and CMP indicate that they did receive and monitor their respective weather reports on Friday, January 11th. CMP states that forecasts of a storm over the weekend prompted a conference call on Friday, January 11th to discuss the potential storm and to go over storm procedures.[126] While CMP management was aware of the potential storm and problems it could cause, and went so far as to notify key personnel, including line workers, CMP did not assign any additional

[125]CMP states that it tracks weather reports submitted by Paul Cousins Atmosforecast, an independent consulting meteorologist, and National Weather Service bulletins. Tr. 11/7/02 at 7, 16; Response to ODR 1-1 from the 11/07/02 technical conference. BHE states that it does receive severe weather alerts from the National Weather Service through Meteorlogix. Tr. 11/21/02 at 5.

[126]Response to ADR 4-1.

personnel to be on call.[127] BHE maintains that it reviewed the weather reports on Friday, January 11th and determined that the predicted accumulations were such that the normal on call staff of line personnel would be adequate for response to any outages that may occur.[128]

We do not necessarily find fault with the decisions reached by CMP and BHE on Friday, January 11th. The problem lies in the failure of both utilities to change their approach to the storm as new information became available to them over the course of the weekend. As noted above, the National Weather Service continuously updated and escalated its warnings regarding the storm, such that by 2:30 a.m. on Sunday, January 13th, it was clear that Maine would be receiving a powerful winter storm. Unfortunately, these escalating reports did not prompt <u>any</u> further action by CMP or BHE.

1. <u>CMP</u>

During the workweek, weather reports come into CMP's communication center via fax periodically during the day. Once received, the communication center issues them to all eleven of CMP's Service Center Managers, Vice President of Customer Services Doug Herling, T&D Manager Connie Hayward, Manager of Customer Relations Rachel Grenier and "a substantial list" of other people.[129] Mr. Herling reviews the reports for any potential conditions that would warrant further action and, if action is required,

[127]Tr. 11/7/02 at 10, 11.

[128]*See* Responses to ADR-3-1, 3-2.

[129]Tr. 11/7/02 at 7.

has a conversation with Ms. Hayward regarding the particular situation and whether any preparation is warranted.[130] On weekends and after regular work hours, monitoring of weather reports is done by the communication center dispatchers.[131] If a dispatcher sees any change in weather that causes concern, the dispatcher is supposed to notify the T&D manager.

CMP stated that during the weekend of January 13, 2002, it operated under standard operating procedures.[132] While CMP did hold a conference call on Friday due to the weekend forecast, it did not make any plans for follow-up conference calls during the weekend, nor did it conduct any such calls until 9:00 p.m. Sunday night, more than eight hours after the Storm hit.[133] Further, CMP dispatchers did not notify the T&D manager regarding the escalating weather forecasts until the storm hit on Sunday.[134]

It appears that CMP's failure to follow the same process regarding weather alerts over the weekend as it does during the work week may have impacted CMP's preparation for Winter Storm 2002. In addition to the lack of attention, there is also a lack of accountability and specific assignment of duties. There are no written procedures assigning responsibility for review of

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[130]Tr. 11/7/02 at 7-9.

[131]Tr.11/7/02 at 7.

[132]Tr. 11/7/02 at 20.

[133]Tr. 11/7/02 at 20-22.

[134]Tr. 11/7/02 at 21.

weather alerts to a specific person or listing standards for triggering additional action if weather alerts predict conditions that could cause outages.

CMP's Emergency Service Response Plan (ESRP) indicates that phases of storm preparation or restoration are activated based on conditions as they arise, i.e. reactively, and that the level of emergency condition is based on the number of customers reporting outages. While CMP's ESRP does have within section 4.3 a Pre-Outage Phase plan that describes the procedures to be taken prior to any outages, it is unclear when and under what conditions the process described in that section of the plan would be activated. Clearly, the conditions of Winter Storm 2002 did not rise to the level requiring pre-outage action. Thus, while we find that CMP acted consistently with its ESRP during the weekend before the Storm by not taking any action until outages were reported,[135] we find such an approach to be unreasonable, especially in light of the additional weather reports. CMP's ESRP should both allow for and require the consideration of additional information, such as weather reports, in determining the level of emergency and the type of preparation and response that is necessary.

CMP's failure to react to the escalating weather reports during Winter Storm 2002 indicates a serious gap in CMP's procedures. CMP's "wait and see" approach creates doubt that CMP would react pro-actively in future storms. CMP should not rely solely on standard operating procedure and

[135]Tr. 11/7/02 at 18-22.

wait for outage calls to exceed the capability of the communication center in the face of forecasts calling for heavy snow and power outages.

2. BHE

Weather forecasts come into BHE's 24-hour systems operation office where the assigned Systems Operator on duty reviews the forecast to determine whether the situation might require activation of personnel before the storm hits or whether BHE can/should wait until the weather actually occurs.[136] There are no written procedures to be used by the Systems Operator in determining the level of weather alert at which to begin the notification and activation process for BHE's storm center other than a requirement of notification if the weather alerts indicate winds over sixty miles per hour or a named hurricane.[137] Otherwise, BHE appears to rely upon the judgment of the Systems Operator. Once the System Operator observes approaching weather events or storms that he/she believes warrants emergency preparation, BHE does have written procedures in its Emergency Operation Plan (EOP).[138]

During Winter Storm 2002, BHE did not activate its EOP upon receipt of the weather reports indicating potential trouble, but instead waited until outages began to occur.[139] The Systems Operator did not contact BHE's Storm Specialist until outages began to occur and regional service

[136]Tr. 11/21/02 at 6.

[137]Tr. 11/21/02 at 7-8.

[138]Response to ADR-1-4, EOP section III, p. 3.

[139]Response to ADR 3-2, 3-4; Tr. 11/21/02 at 25-26.

centers/garages were opened.[140] We find that the lack of specific guidelines to be used by the Systems Operator in determining conditions within a weather alert that might warrant review by the Storm Specialist before weather arrives may have hindered BHE's pre-outage preparation.

3. Conclusions

We find that both CMP and BHE failed to act upon follow-up weather reports throughout the day Saturday and into the early hours of Sunday that showed significant changes in weather conditions, including conditions that met the criteria described by both CMP and BHE as potentially causing problems on their systems. Weather reports throughout the weekend gave clear indications that a storm with the potential to cause significant system damage would hit coastal Maine on Sunday.[141] Despite reports like these, both CMP and BHE took a "wait and see" approach, similar to any normal weekend without severe weather, rather than a proactive approach, i.e., rather than keeping a close eye on outages, calling in workers so they would be ready to go, and activating their storm procedures. Had both CMP and BHE taken a more active role in reviewing these increased warnings and taken appropriate action to prepare prior to the Storm's arrival, customers might not have had such a difficult time reporting outages and outages might have been repaired sooner. As we

[140]Response to ADR 3-3.

[141]AtmosForecast's 9:47am Sunday report predicted heavy loading of power lines and trees caused by wet snow along with strong winds from 1pm Sunday to 1am on Monday. ODR 1-2 from the11/07/02 Technical Conference, Attachment 1.

stated in the *1998 Ice Storm Order*, it is essential that utilities monitor weather conditions closely and be prepared to respond to outages as soon as possible.

Thus, we order CMP and BHE to take the following actions:

i. CMP and BHE must develop specific guidelines for unusual weather conditions within a weather report or alert that would prompt action within their emergency response plans; and

ii. CMP and BHE must initiate a plan for documenting decisions made for any pre-storm preparations as a result of weather reports (alerts) that fall within set guidelines; and

iii. CMP must incorporate a procedure within its ESRP for disseminating extraordinary weather reports (alerts) to essential personnel on a 24-hour schedule, seven days a week.

CMP and BHE must make a filing within 90 days of this Order showing compliance with these requirements

C. Communication

In our *1998 Ice Storm Order,* we encouraged utilities to develop better communication procedures for communicating with Emergency Management Agencies, their customers, the Commission and other utilities. Our investigation of BHE and CMP's performance in this area during Winter Storm 2002 revealed that procedures were either never developed or, if they were developed, they were not implemented. Indeed, we saw very little improvement in any of the areas of communication compared to that which occurred during the Ice Storm. Thus, we will order CMP and BHE to review the Commission's Communication Recommendations outlined in the *1998 Ice Storm Order* and make any and all necessary changes in order to comply with those recommendations. Both CMP and BHE are also ordered to file a full report with

the Commission within 90 days describing the actions taken to comply with the Ice Storm Recommendations.

1. Communications With Emergency Management Agencies

Ice Storm Recommendation IV-3 stated that: "All utilities should establish continuing emergency liaison procedures with state, county, and municipal emergency management officials so that those officials are aware of each utility's capabilities and needs during emergency situations."[142] While both CMP and BHE communicated with MEMA and county EMAs during the January storm, BHE did a much better job. MEMA stated that BHE's provision of information to MEMA during the January storm set the standard. "It was very appropriate to have received as much information as we had because we were able to use that information to basically support what we were doing out in the field."[143] BHE has a separate telephone number for emergency management personnel to reach BHE during outage situations and a desk dedicated to handling communications with emergency management agencies. During the January 2002 storm, BHE sent out information to emergency management agencies in a variety of formats[144] and
found the use of e-mails to be an extremely effective communications tool with emergency management agencies.

[142]Recommendation IV - 3, *1998 Ice Storm Order* at 43.

[143]Tr. 11/21/2002 at 116.

[144]Tr. 11/21/2002 at 104.

CMP stated that during Level 1 and Level 2 storms it sends MEMA a "blast fax" with the same information provided to the media and uses its Internet site to provide MEMA with outage information. Individual CMP Service Centers have made specific arrangements with county EMAs to provide CMP points-of-contact and information during storm events.[145] On November 18, 2002, MEMA informally asked CMP to provide expanded information (e.g., counts of outages) on its outage information website; CMP indicated that it would consider such a request.[146] CMP has not, however, implemented the requested changes nor responded to MEMA.

The Waldo County EMA from the Rockland area complained to the Commission that during the Storm it had difficultly contacting CMP because the telephone contact numbers CMP had supplied them were no longer valid.[147] CMP acknowledged the problem and stated that the Waldo County EMA did eventually reach the proper person at CMP and that CMP has put a process in place to correct the problem.[148] The problem with Waldo County led CMP to develop a model agreement which provides for periodic updating of contact information on both sides and for coordination and communication during prolonged outages.[149] However, these plans limit notification to power outages

[145]Response to ORD-1-8 from 11/21/02 Technical Conference.

[146]Tr. 12/18/02 at 33-34.

[147]Tr. 11/7/2002 at 113-114.

[148]Tr. 11/7/2002 at 113-114. CMP may be willing to provide expanded info (e.g., count of outages), requested by MEMA, on its website. Tr. 12/18/02 at 33-34.

[149]Response to ORD 2-2 from the 12/18/02 Technical Conference.

significant enough for activation of CMP's Storm Operations Center, a Level 3 storm. The January 2002 Storm was classified by CMP as a Level 2 storm, even though there were extended outages, and thus the new plans would not have been activated had they been in place at the time.

Both BHE and CMP should continue to work with state and county EMAs to improve their communications procedures for all levels of storm classifications. Periodic meetings should be held between the electric utilities and EMA representatives to review these procedures and update contacts. We remain particularly concerned with CMP's desire to limit notification to Level 3 storms and order CMP to file a report within 90 days of this Order on what additional steps or additional triggers might be taken or put in place to assure proper notification of extended outages during all events.

2. Outage Reporting Systems

CMP and BHE both rely heavily on the volume of outage calls they receive to determine the level of action taken under their emergency response plans. Thus, it is essential that CMP and BHE have processes in place to handle the volume of calls that occur when a storm or other type of major outage occurs. This is especially true for periods after normal working hours and on weekends, when resources are limited. For reasons discussed below, both CMP's and BHE's telephone systems were not ready and able to handle the number of outage calls that occurred during Winter Storm 2002. These failures negatively impacted the response of both CMP and BHE to the outages.

a. CMP

At the time of Winter Storm 2002, CMP had a manual process in place to add to its call volume capability on weekends. The process occurred every Friday evening and involved switching 71 trunk lines from CMP's business office to its outage center, thereby increasing the available lines at the outage center to 117. During the weekend of Winter Storm 2002, a problem occurred with the transfer of the lines and only 35 of the 71 trunk lines switched from CMP's business office to its outage center. This resulted in only 81 of the 117 total trunk lines to CMP being available for outage calls, making it difficult for CMP customers to report their service outages. Indeed, a significant number of CMP customers reported receiving busy signals when they attempted to call CMP to report their outage.[150] CMP corrected the trunking problem sometime on Sunday afternoon, January 12th, but the problem was not completely resolved until CMP activated 21st Century, its external Interactive Voice Response (IVR) system, at approximately 6:30 p.m. on Sunday.

CMP does not start the process of activating 21st Century until it has evidence that outage calls are beyond the limits of its internal IVR system. During Winter Storm 2002, because CMP did not know that some of its trunk lines were not working, it wrongly assumed that outages had not reached the capacity of its system and thus delayed activating 21st Century. Activating 21st Century is a manual process which involving networking and

[150]Response to ADR 4-18.

telephone trunk work. At the time of Winter Storm 2002, CMP's policy was to not turn on the 21st Century system proactively; it would wait until the need arose and then complete the trunking work.[151] CMP changed its policy in response to the problems that occurred in Winter Storm 2002 and now, when the potential for an outage-causing storm arises, CMP will turn on the server even though it is not certain that 21St Century will be used, thereby saving an average of 45 minutes in activation time.[152]

CMP uses customer outage calls to populate its Smart Map outage-tracking system, which CMP operational personnel rely upon in planning restoration activities. The fact that many outages were not initially reported due to the inability of CMP's customers to contact CMP may have contributed to CMP underestimating the severity of the storm and the amount of damage that CMP's facilities had sustained. This, in turn, may have impacted CMP's assessment that mutual aid was not needed. CMP disagrees with this conclusion and testified that because its telephone system was working properly for a 2.5-hour period prior to the time CMP did its initial damage assessment on Sunday evening, the problem with the phone system did not impact the damage assessment or the decision not to seek mutual aid.[153]

We continue to believe that the problem with CMP's phone system impacted CMP's storm assessment. The Storm moved rapidly

[151]Tr. 11/17/2002 at 12-14.

[152]Tr. 11/17/2002 at 12-14.

[153]Tr.11/7/2002 at 53-54.

and affected a large portion of CMP's territory. Customers who tried to report outages in the afternoon but could not get through may have given up by the time CMP activated 21st Century. Thus, CMP likely made decisions regarding the impact of the storm without the full information it needed. Indeed, the length of time it took to restore service to CMP customers indicates a level of severity of damage that was not reflected in the decisions made Sunday evening by CMP.

The changes CMP has made to its IVR activation process show that CMP is now taking a more proactive approach to this issue and that its customers should not experience the same difficulty in reporting future outages as they experienced during Winter Storm 2002. These changes should also ensure that CMP receives accurate and timely information regarding outages, thus improving its ability to assess damages and correctly categorize the outage. As we discuss more fully below, categorizing an outage situation correctly is critical to allocating the appropriate amount of resources to restore service as quickly as possible.

b. BHE

BHE's customer service center has 69 incoming lines on an automated Interactive Voice Response (IVR) system where calls will overflow between sites if all trunks are busy.[154] BHE stated that its IVR system is always activated and ready to receive calls. However, as BHE recognized in its internal storm assessment report, BHE's outage reporting system did not work

[154]Response to ADR 1-28(E).

properly during the early part of Winter Storm 2002, resulting in a significant number of its customers receiving busy signals when they tried to contact BHE to report outages.[155] BHE acknowledged that there was a technical problem with their phone system, however, it did not provide Commission Staff with an explanation of exactly what the problem was and thus we are unable to comment on whether an appropriate fix has been made.

BHE believes that customers received the greatest number of busy signals Sunday evening, January 13, 2002 and all day Monday, January 14, 2002. By Tuesday, January 15, 2002, BHE was answering 66% of its calls in 30 seconds, compared to 4% on Sunday evening and 21% on Monday. In total, according to data provided to BHE by Verizon, between 4:30 PM on January 14, 2002 and 7:45 AM on January 25, 2002, 14,279 callers received busy signals when they tried to reach BHE. If BHE's system had been working correctly, customers would not have received any busy signals. While BHE did not have data on the number of callers that could not get through Sunday, January 13, 2002, through Monday, January 14, 2002, prior to 4:30 pm., it did note that it allocated 33 additional staff to respond to customer calls during the height of the storm.[156]

Information provided by customers when reporting outages is entered into BHE's GIS "Power On" system which provides outage

[155]ADR 1-28 ("The number of customers attempting to call the Company exceeded our ability to answer all calls simultaneously.")

[156]Response to ADR 1-28.

information to operational personnel. Thus, the more calls the utility can handle, the more accurate the picture the operational personnel have regarding restoration priorities. BHE believes, and we concur, that the problems customers had reaching BHE to report their outages affected BHE's response to the outages. Specifically, we believe the inability of callers to report their outage may have led BHE to underestimate the extent of the damage early on.

When questioned regarding the use of an automated high volume call handling system such as 21st Century, BHE expressed concern that such a system, which allows more calls to come in, would increase the number of call backs that have to be done once restoration work has started. Under BHE's Power On system, call backs are needed in order to refresh the outage information in order to determine which outages are continuing.[157] BHE believes that the costs associated with a high volume call handling system are too excessive and thus it has not yet invested in such a system.[158]

We find that BHE needs to improve its phone system and eliminate call volume limitations. BHE must report to the Commission within 90 days of the date of this Order on what changes it has made or intends to make to address this issue. In its report, BHE must provide the Commission with a description of each of the other alternatives that it investigated and the costs associated with each alternative.

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[157]Tr. 11/21/2002 at 36-39.

[158]Tr. 11/21/2002 at 36-39. BHE also stated that it obtained pricing information from 21st Century IVR service and determined that the service was not cost-effective for BHE. *See* Response to ADR 3-20.

3. Communication With Customers

Both CMP and BHE failed to provide their customers with specific, timely outage restoration information during Winter Storm 2002. The Commission heard from a number of CMP and BHE customers during the Storm who expressed their need for more detailed information regarding the service restoration efforts. These customers reported that the information they were receiving from CMP and BHE was very general and often the same information that they had received a day or two earlier.

It appears that neither CMP nor BHE complied with the Commission's Ice Storm Recommendation IV-13 that, "Utilities should improve provision of restoration information to customers during major outages, through improvements to existing systems where possible," and Recommendation IV-14 that, "Utilities should develop a better process for keeping customers informed of the restoration process" [159]

We believe there are several factors that contributed to the lack of information provided by BHE and CMP. First, both utilities underestimated the severity of the storm and incorrectly categorized the storm. For CMP, the incorrect classification meant that communication was handled by the regional service centers throughout the storm where there were not sufficient resources to keep all customers accurately informed about restoration activities. While BHE upgraded its classification of the storm on Monday, January 14, 2002,

[159] *1998 Ice Storm Order at 50.*

it continued to provide customers with only information similar to that provided in periodic media "push" updates. As the week progressed and major lines were restored, BHE provided its customers with information concerning the general areas where BHE's crews were working, but did not estimate restoration times.[160]

It is essential that utilities provide estimated restoration times in winter storm situations so that their customers can make informed decisions as to whether or not to leave their homes and seek other shelter. BHE appears to understand the importance of this issue; BHE listed improved communication with customers as one of the areas it is currently working to improve.[161] CMP never changed its classification of the Storm, despite the fact that it met the criteria listed in CMP's ESRP for a Level 3 storm, i.e. over 10% of CMP's customers were impacted by the storm. We believe that CMP's failure to upgrade the storm to the proper classification resulted in a failure to allocate adequate resources for communicating restoration information to its customers. It appears, based upon review of CMP's self-assessment of its Winter Storm 2002 performance, that CMP recognizes that the amount and timeliness of the information that CMP provided to its customers could be improved.

The second factor contributing to the lack of detailed information was the failure of CMP to follow many of the recommendations made in the Commission's *1998 Ice Storm Order*. Indeed, in the *1998 Ice Storm Order*

[160]Response to ADR 1-29.

[161]In response to ADR 1-7, BHE stated; "Partially completed. Still are working on better information to customers regarding time until restoration will be completed."

the Commission specifically recommended that CMP improve its provision of restoration information to its customers.[162] Yet, in response to Advisors' Data Request 1-7, CMP stated that "no action [is] needed" to implement Commission Ice Storm Recommendation IV-19." When asked to explain how CMP reached that decision, CMP stated, "it would be impossible to provide detailed, accurate information in the early stages of restoration beyond what CMP currently offers in press releases and broadcast interviews."[163] CMP did indicate, however, that it has explored creation of an IVR menu system to put into use after initial customer notification call volume subsides. Such a system would provide a customer calling the 21st Century system a menu of options, including listening to a daily report of restoration progress that could be tied to the customer's local area. CMP states that it is still exploring many aspects of this system, but believes it has the potential to provide additional, albeit non-customer-specific, information.[164]

In its response to Advisors' Data Request 1-7, CMP stated that it had completed implementation of Commission Recommendations IV-23 and IV-24, relating to increasing use of division personnel and a volunteer work force to assist in communications with customers during major outages and that it had decided not to follow Commission recommendations. When asked to

[162]Recommendation IV-19, *1998 Ice Storm Order* at 56; and Recommendation IV-27, *1998 Ice Storm Order* at 62.

[163]Response to ADR 4-23.

[164]CMP also stated that it had added a feature to its Internet page that allows the public to view power outage information.

explain this decision, CMP stated that the Service Center Staff's primary responsibility is to achieve the fastest and safest possible restoration of service and that diverting significant resources from this responsibility to communicating restoration information to its customers would slow the restoration process.[165] CMP went on to state, "CMP did not consider the January 2002 storm and related restoration efforts to warrant the recruitment of retirees to provide information to customers." Yet Doug Herling, Vice President of Customer Services for CMP, stated in a March 11, 2002 letter to the Commission that, "With such widespread damage and after receiving more than 61,000 calls within 24 hours of the storm, we found the ensuing restoration effort to potentially be the largest in more than two years."

We find that both BHE and CMP must improve their ability to communicate specific outage restoration information in a more timely manner to their customers. Because both utilities failed to implement earlier recommendations, we must now order both utilities to develop and submit a comprehensive Restoration Information Plan to the Commission for review and approval within 90 days of the date of the Order in this case. The plans should include provisions for web and radio updates and incorporate Commission Ice Storm Recommendations IV-13 and IV-14.

4. Communication with Special Needs Customers

During Winter Storm 2002, both BHE and CMP employed reactive policies regarding their customers with pre-existing medical emergencies

[165] Response to ADR 4-25.

and their customers with life support designations. We find such a reactive policy unacceptable and in contravention of the Commission's Ice Storm Recommendation IV-29 that utilities should develop notification procedures to advise customers with pre-existing medical emergencies and life support designations of when they can expect restoration of their service.

CMP stated that it was developing procedures to use its list of customers in its LifeLight Program (over 900 customers) to proactively contact these customers during unplanned, extended outages.[166] CMP also stated that on larger, multiple day outages, like a Level 3 storm, CMP makes proactive calls. According to CMP, while making proactive calls is not required with smaller storms, some service centers may make such calls depending on the circumstances. Specifically, CMP stated that its life support customers in the Brunswick, Rockland and Belfast Service Centers were provided with restoration times and estimates if they called CMP to report they were out of power.[167] Further, the Brunswick Service Center contacted local emergency management agencies (EMAs) for life support customers who had contacted them, if estimated storm restoration times were going to place the customers at risk. Thus, only customers who contacted CMP received assistance and the amount of assistance they received depended on their service center.

The outages that resulted from Winter Storm 2002 were lengthy outages, placing special needs customers at risk. As stated earlier,

[166]Response to ADR 1-7.

[167]CMP's Response to ADR 1-29.

CMP's outage reporting lines were not working properly at the beginning of the Storm and the power outages associated with this Storm affected telephone service in some areas as well, thus making it difficult, if not impossible, for some of these customers to contact CMP.

When questioned about its implementation of Recommendation IV-29, BHE stated; "No special process is in place to attempt to communicate with life support customers."[168] When asked if life-support customers were contacted during Winter Storm 2002, BHE responded that life support customers were not proactively contacted.[169] Those life support customers that contacted BHE were provided emergency shelter information and advised to seek alternative shelter because BHE could not accurately predict restoration times.

The practices of both CMP and BHE of using a proactive approach only during events which qualify as the most severe circumstances/storms under their respective emergency management plans is not acceptable. Both BHE and CMP must implement proactive policies regarding life support customers whenever they are aware that a lengthy outage is likely to occur, regardless of how the utility categorizes the storm. Specifically, during any level of storm or emergency event, CMP and BHE must adhere to the outage notice requirements contained in Section 7(C) of Chapter 810 in unplanned outage situations involving customers with pre-existing medical emergencies or

[168]Response to ADR 1-7.

[169]Response to ADR 1-29.

that have life support designations. Both BHE and CMP should take all necessary steps to bring themselves into compliance with Chapter 810 within 30 days of this Order.

5. Communication With Other Utilities

Both CMP and BHE failed to communicate at the corporate management level with other utilities in their service areas during the January 2002 storm. For quite some time we have stressed that the identification of service priorities that affect public safety and other public utilities is important to a utility's provision of "safe, reasonable and adequate service" and instructed utilities to identify such critical facilities and notify serving utilities accordingly.[170] We subsequently underscored the same concern in our review of utility response to Ice Storm 1998.[171] However, neither CMP nor BHE complied with the Commission's Ice Storm Recommendation IV-13, "When electric utilities activate emergency centers to coordinate response to natural disasters such as the ice storm, they should notify both [Verizon] and the Telephone Association of Maine (TAM) and invite each organization to provide a liaison at their emergency control centers during restoration activities." CMP and BHE also failed to implement Ice Storm Recommendation IV-14, "Electric utilities should arrange with other utilities (e.g. water and telephone utilities) for direct contact to provide restoration and work estimates to those utilities when they cannot restore their own services

[170] Rulemaking: Chapter 130, Accident Reporting Requirements, Docket No. 96-480, Order at 9-10 (Feb. 12, 1997).

[171] *1998 Ice Storm Order* at 33-34 and 75.

due to lack of utility-provided power." CMP and BHE provided only limited assistance and service restoration information to other utilities seeking to restore their services due to lack of utility provided power during Winter Storm 2002.

a. CMP

CMP could not say what type or how much communication it had with other utilities during Winter Storm 2002, as it was done at a local level.[172] CMP stated that it did not directly contact Verizon and TAM during the Storm as recommended in the Ice Storm Order[173] because it only does so during a level 3 storm. As noted previously, CMP formally categorized Winter Storm 2002 as a less severe Level 2 event, even though the storm affected more then 10% of its customers.[174] CMP stated that it "typically" does not coordinate with other utilities in outage situations[175] and does not maintain formal telephone contact information that would be used for such contacts.[176]

CMP claims that it has a process in place if a utility calls CMP and requests information, otherwise the provision of general outage and restoration information is handled through CMP's press releases and through communication with EMAs.[177] CMP further said that it:

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[172]Tr. 11/7/2002 at 98-99.

[173]CMP, like BHE, claims that it did have some communication with Verizon at the service center level, but it is unknown how much communication occurred. Tr. 11/7/2002 at 102-108.

[174]Tr. 12/18/02 at 10-12.

[175]Tr. 11/7/02 at 103.

[176]Tr. 11/7/02 at112.

[177]Tr. 11/7/2002 at 112.

> . . . cannot commit to advise telephone and water utilities of restoration estimates. First, CMP does not have specific information identifying critical telephone and water utility equipment that depends on electric service provided solely by CMP. Second, unlike many of CMP's other critical customers, telephone and water utilities have made provisions (some in response to regulatory requirements) to have and maintain backup power sources, such that restoration of these utilities may not be first priority in a storm event. Third, for the same reasons that CMP does not provide other customers with circuit-by-circuit restoration information, attempting to provide such information to other utilities would be imprecise and impracticable.[178]

When specifically questioned about Verizon's Digital Loop Carrier (DLC) sites, CMP stated that it does not maintain a separate list of these sites nor does it dispatch crews to them during a storm.[179] When asked by Staff if Verizon had provided CMP with a list of DLCs, CMP did not recall receiving a list. (In an earlier Technical Conference, Verizon asserted that it had provided CMP with a list of its DLC meter numbers.[180]) CMP also stated that it did not believe it should have a list because Verizon has lines of communication with CMP and that Verizon is better equipped to take care of its facilities in storm situations than CMP's other customers.[181] CMP claims that having such a list would lead to inefficient service restoration.

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[178]Response to ADR 4-27.

[179]Tr. 11/7/02 at 92-98.

[180] Tr. 07/18/02 at 112.

[181]Tr. 11/7/02 at 92-98.

CMP asserts that storm events are managed at the lowest level possible.[182] Prioritization of service restoration is done on a storm-by-storm basis at the service center manager level and below and critical customers are handled on a case-by-case basis with each storm.[183] Personnel are put in place at CMP's service centers to handle these contacts by critical customers. Further, critical customers vary with the seasons and CMP does not have any customer that it considers always to be a critical customer.[184]

CMP's ESRP states that when CMP activates its storm room during a Level 3 storm it will invite Verizon to the storm room. CMP is also now going to invite TAM to the storm room, as well, during Level 3 storms. For Level 1 and Level 2 storms, CMP continues to believe that contact at the local level is appropriate.[185]

b. <u>BHE</u>

During the Storm, BHE activated its emergency center but failed to communicate at a corporate level with Verizon or TAM.[186] BHE stated that it had not established a procedure to notify Verizon and TAM in accordance with Recommendation IV-13.[187] BHE determined during the course

[182]Tr. 11/7/2002 at 92-93.

[183]Tr. 11/7/2002 at 96-98.

[184]Tr. 11/7/2002 at 96-97.

[185]Tr. 12/18/2002 at 9-10.

[186]BHE, however, communicated on a local service level with the telephone companies. Tr.11/21/2002 at 95-101.

[187]Response to ADR 1-07.

of this litigation, after looking back at the *1998 Ice Storm Order,* that there was a "definite deficiency in our approach to the critical customer process." BHE stated that it did not pick up on the directive in the order to make proactive contact with TAM and Verizon.[188] BHE currently has a desk with a dedicated telephone line in its command center in its central dispatch area, which it refers to as the Critical Customer Line. This line was in existence during Winter Storm 2002 but was not used proactively to contact critical customers. BHE has since taken steps to proactively notify both Verizon and TAM in major outage situations.[189]

BHE also stated that it had developed contact methods for other utilities during emergencies in accordance with Recommendation IV-14. No other utilities, however, had identified specific facilities as critical facilities to BHE.[190]

c. Conclusions

Both CMP and BHE need to improve the level of communication with other utilities regarding service restoration. BHE has taken steps to do this by establishing a separate dedicated telephone line for utilities to contact BHE regarding outages and outage restoration efforts. We are not satisfied with CMP's continued insistence on local-only communication during Level 1 and 2 storm, especially in view of the miscatagorization of this Storm.

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[188]Tr. 11/21/2002 at 94-95.

[189]Tr. 11/21/2002 at 93-94.

[190]Response to ADR 1-6.

Thus, we order both CMP and BHE to establish a formal communication process with other utilities for each level of storm or emergency. The process should included e-mail communications procedures as well radio, cellular and telephone communications procedures. Plans outlining these procedures should be filed within 90 days of this Order.

6. Communication with the Commission

Chapter 130 of the Commission's Rules addresses outage reporting by utilities. On December 30, 2002, the Director of Technical Analysis issued a specific reporting protocol that all utilities are required to follow when reporting outages. The protocol requires that the initial outage report include: the time off, circuits affected, towns affected, number of customers affected, the cause (if known), and any comments that might concern the outage. It further requires that the final report include the same information, as well as the time on and any other comments concerning the outage. As will be discussed, CMP needs to make major improvements in its reporting process while BHE seems to have developed, albeit during Winter Storm 2002 itself, a satisfactory reporting system.

a. CMP

The information provided by CMP's press releases throughout the Storm[191] was not sufficient and did not contain any specific circuit information as specified in the reporting protocol for Chapter 130.[192] The CAD

[191]Response to ADR 1-32, Attachment 2.

[192]Tr. 11/7/02 at 82-86.

was forced to contact CMP daily to obtain more specific restoration information, including the number of customers out of service in each area, the number of line and tree crews in each area, the estimated restoration times, the number of poles in each area, etc. During a technical conference, Mr. Herling stated that CMP "did not have that information readily available on a major storm."[193] He went on to say that there might be something that CMP could provide the Commission during the storm, but that the specific information required under the Chapter 130 protocol is not available during a major storm.

b. BHE

BHE initially provided the Commission with only press releases describing its service restoration process. Part-way through the Storm, BHE started providing the Commission with more detailed outage information, including numbers of outage reports by road, within towns and within counties. BHE stated that it believed that it complied with Chapter 130 provisions when it provided this detailed restoration information to the Commission via its periodic information "push."[194] BHE continued sending information out in that format after hearing back that it was the type of information that both the Commission and emergency management personnel wanted and needed.[195]

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[193]Tr. 11/7/02 at 85.

[194]Response to ADR 1-32.

[195]Tr. 11/21/2002 at 114.

c. Conclusions

CMP must provide the Commission with outage information which meets the reporting protocol for Chapter 130. CMP should file a report with the Commission within 90 days specifying what steps it has taken to improve its systems to be able to provide the necessary information. The report should also specify who at CMP will be responsible for contact with the Commission and provide contact information (telephone, mobile phone, and pager numbers). BHE's reporting of detailed information during periodic "pushes" meets the reporting requirements of the Chapter 130 reporting protocol provided the information is made available from the beginning of outage situation.

D. Restoration

Based on our investigation, we believe that the following actions (or inactions) by CMP and BHE contributed to unreasonably long outages for many customers:

1. CMP failed to follow procedures outlined in its ESRP;
2. CMP failed to initiate its system-wide formal assessments plan;
3. BHE failed to develop a formal assessment plan;
4. BHE and CMP failed to accurately track and monitor crew deployment;
5. CMP decided not to pursue any mutual aid from other utilities; and

6. BHE ineffectively handled callbacks to customers which stalled its ability to accurately populate outage records on the Power On System.

Each of these specific actions will be discussed more fully below as we review the electric utilities' assessment of damage, deployment of crews and restoration.

1. Assessment

A well-defined assessment process is essential to a well-organized and efficient restoration effort. A utility cannot manage its own resources nor determine whether additional resources are needed if it does not have an accurate picture of the type, extent, and location of damage to its systems. During a storm event such as Winter Storm 2002, a concentrated assessment process early into the restoration effort is vital to determining the amount of resources needed and their efficient deployment.

Our investigation has revealed that neither CMP nor BHE had in place a well-defined assessment process and that the absence of such a process negatively impacted the timeliness of restoration of service.

a. CMP

On Sunday, January 13th at 9:00 p.m., CMP held a conference call to assess damage, determine the needs of the affected Service Centers, and decide if any outside mutual aid was required.[196] During the call, CMP relied heavily on reports from line workers and personnel heading into work

[196]Tr. 11/7/02 at 23-29.

as well as the number of outage calls received Sunday afternoon and evening to reach a decision that the damage was not extensive enough to warrant calling in mutual aid.[197] CMP believed it would be close to finishing the restoration efforts by the time any mutual aid arrived.[198] It appears that no formal assessment had taken place at the time this decision was made.[199] Ultimately, CMP's assumption regarding the timeliness of mutual aid proved to be incorrect due to the inaccuracy and lack of formal assessment information concerning the true extent of the damage to CMP's system.

Although CMP's approach to assessment on Sunday night may have been reasonable as an early response, it needed to be followed-up with a more detailed and formal assessment, especially since all indications were that the conditions of heavy wet snow and wind would result in a large number of outages. Preliminary observations are vague and incomplete and only serve to give the utility a limited snapshot of the conditions. A utility needs to take additional steps, such as evaluating the snapshot in light of experience with similar conditions in the past and conducting formal assessment activities, to determine the true extent of the damages. Ideally, such an evaluation would have taken place Sunday night or Monday morning.

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[197] As described earlier, the number of outage calls was likely artificially low due to the limited number of lines available to take calls.

[198] Response to ADR 1-5.

[199] Response to ADR 4-10.

It is not clear when, or even if, any efforts were made to establish a more precise plan for assessment than that conducted on Sunday night. CMP stated that each Service Center was responsible for coordinating the assessment process and that during conference calls each Service Center would report the percentage of assessment that had been completed. However, CMP was not able to produce documents that reflected the percentage of assessment completed for the original conference call on Sunday evening or for any other conference calls.[200] CMP also testified that some individuals were assigned to do assessments at each Service Center, but could not produce any confirmation of the numbers assigned and if they came from other departments or areas.[201]

CMP also could not confirm if any of the service centers utilized the assessment procedures and forms established within their ESRP, which identifies accurate assessment as the key to identifying resource needs. [202] Section 5 (Resource Plan) of CMP's ERSP lays out the process to be used during a Level 3 storm/situation for assessment. Section 5 directs assessment responsibility to distribution engineering and substation crews in order to provide management with an accurate picture of repair needs and the need for outside assistance. However, these procedures were not triggered during Winter Storm 2002 because CMP categorized the storm as a Level 2, even though the number of outages exceeded the criteria for a Level 3.

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[200]Tr. 11/7/02 at 28.

[201]Tr. 11/7/02 at 33-39.

[202]Tr. 11/7/02 at 35.

We are concerned that CMP elected not to follow its ESRP during Winter Storm 2002 and therefore operated differently than as set forth in the plan. The failure to use the criteria listed in the ESRP and to follow the plans for detailed assessment may have significantly slowed restoration. CMP states that the ESRP is used as a guideline during emergency situations, that every situation is different, and that it is CMP management's responsibility to make judgment calls that may deviate from the plan. CMP believed that the magnitude of the Storm was one where only 10% of its customers would be affected for a small period of time (less than 12 hours).[203] However, by Monday CMP knew that 60,000 customers were out of service and that additional outages were continuing to be reported.

CMP states that storms with outages that exceed 10% of their customer base require corporate leadership in managing a storm. CMP claims that corporate management allows it to operate effectively in moving resources to the areas that are impacted the most.[204] CMP claims that even though it did not follow the ESRP, it managed Winter Storm 2002 from a corporate perspective.[205] However, our investigation revealed that procedures relating to corporate management, i.e. formal assessment, were not put in place during Winter Storm 2002. Instead, CMP relied heavily on information from its Service Centers, which were using undefined (and likely disorganized)

[203]Response to ADR 4-7.

[204]Tr. 11/7/02 at 37.

[205]Response to ADR 4-7.

assessment processes. If CMP had upgraded to a Level 3, processes would have been put in place that may have supported storm assessment, crew tracking, and EMA and other utility coordination. .

In addition, it is unclear how the Service Center assessment process for this event was being coordinated, both at the Service Center level and with corporate headquarters. There is little evidence that the Service Centers had a high level assessment process in place to not only accurately relay what their resource needs were but to better coordinate an efficient logistical plan of deployment as well. Instead, CMP Service Centers underestimated the amount of damage and the number of resources needed to achieve timely restoration. Because corporate management was relying on the Service Centers for this vital information, decisions were likely made that did not appropriately address the actual conditions.

We also find that CMP's problems at the beginning of the Storm with the telephone system's ability to handle large numbers of outage calls may have initially impacted CMP's restoration effort by not giving an accurate picture of the number and location of outages. However, this did not greatly influence the overall restoration process because CMP resolved the problem early on Sunday evening and then switched over to 21st century.[206] We are pleased to see that CMP has responded to this problem by making changes to their internal telephone trunking capacity and creating an automatic transition,

[206] Response to ADR 1-28.

thus eliminating the weekly manual intervention. However, we feel it is important to note because it may have affected the restoration response.

Ultimately, while we agree with CMP that a corporate approach is helpful in managing resources, we are concerned that CMP management did not have enough information to properly manage the storm at a corporate level or that it did not respond appropriately to the information it was given because resource deployment decisions did not match the need in the field. Specifically, it appears that because CMP elected not to follow the procedures in its ESRP calling for a corporate assessment process but instead chose to rely upon on the Service Centers' ability to assess under an undefined process, resource deployment was not done in the most effective or timely manner.

b. BHE

When the storm hit and outages began, BHE operated according to its EOP at a Condition 2. On Monday morning, BHE upgraded the storm to a Condition 3 and when conditions warranted, BHE opened its Storm Command Center due to the amount of damage and customer outages.[207] However, BHE does not have a corporate assessment plan or

[207]BHE's EOP describes three general Operating Modes -- Condition One, Two and Three. Each Mode requires a different action plan based on the storm or event conditions. A Condition One is primarily a default mode or typical day-to-day operations. Condition Two is warranted when there are moderate to heavy outages, when at least two or more Districts are open for crew dispatching, or when 500 or more customers are expected to experience outages for four or more hours. The action plan under this condition would require notification procedures set forth for the System Operator and implementation of any or all of the measures set forth in BHE EOP depending on the system conditions. A Condition Three is activated by the Storm Specialists when potential emergency situations exists and would require full activation of the EOP including the activation of the Storm Command Center. See Response to ADR 1-4.

process within its EOP. It appears that BHE relies upon Storm Specialists[208] who work within its command center to coordinate any additional resources required by Line Superintendents in the divisions (field offices). BHE's process requires Superintendents to contact the Storm Specialist and provide updates on conditions and the resources necessary to restore power. Superintendents might request "bird dogs" – individuals who work with line crews to do on-site assessment of damage and/or they might also request district operation office support which would assist in the management of outage and damage information for use in the dispatch of restoration crews.[209]

BHE provided the Commission with a list that showed additional personnel assigned to various districts during the storm. The list indicates that a number of individuals were assigned as line crew help and bird dogs.[210] However, BHE testified that anyone assigned as a bird dog was primarily assisting the line crews in the field by patrolling ahead and providing navigational needs; they were not systematically or specifically assigned to circuits or areas for damage assessment.[211] Thus, it appears that there is no process or procedure for assignment of personnel dedicated to damage

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[208]Individuals within BHE's command center, who are responsible for line and electrical operations. One of the Storm Specialists' duties is to coordinate any additional resources required by Line Superintendents in the divisions.

[209]Response to ADR 1-4, EOP attachment Appendix II section 2.5 & 2.6.

[210]Response to ADR 3-9, Exh. 2.

[211]Tr. 11/21/02 at 31-32.

assessment either corporately or on a district level.[212] Indeed, BHE acknowledges that any information on damage assessment from the bird dogs would go back to the local districts but not to the central location or storm center.[213]

This lack of a formal damage assessment process concerns us because it impairs management's ability to effectively estimate the need for resources and then efficiently assign them. BHE testified that it relied upon preliminary information from customer outage calls to reach its decision to seek mutual aid from other utilities and contractors early in the storm.[214] However, BHE's lack of a system-wide assessment plan leaves us with doubt as to how effective and timely BHE was in deploying these additional crews to the most affected areas. Indeed, BHE's own storm critique acknowledged that the initial assessment significantly under-estimated the damage to its plant and thus BHE placed a high priority on developing a method of inventorying damage earlier in the process.

2. Coordination and deployment of crews

During our investigation, we reviewed the data concerning the number of days it took BHE and CMP to restore power alongside each utility's chronological records relating to crew/resource deployment. It appears that both utilities failed to respond quickly enough with sufficient resources.

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[212]Tr. 11/21/02 at 31.

[213]Tr. 11/21/02 at 31.

[214]Response to ADR 1-5.

a. CMP

During Winter Storm 2002, CMP opened the affected Service Centers, Brunswick and Rockland/Belfast, as outage call volumes began to exceed the control of CMP's Communications Center. Other service centers experienced some problems but nothing that resulted in extended outages. The Alfred Service Center was first hit by the storm as early as noon on Sunday. The Brunswick Service Center was requested to begin staffing up around 1:30 pm and Rockland/ Belfast Service Center followed shortly behind Brunswick and began the staffing process around 3pm.[215] Both Service Centers reported that by Sunday evening they had between 80% and 90% of their local line crews were working.[216]

During our investigation, we requested that CMP provide information concerning the geographical extent of outages within its service territory as well as a chronology of it's preparation for and response to the storm from the time of the first outage to the time of the last restoration of service.[217] CMP responded by giving information only for the Brunswick and Rockland/Belfast Service Centers. However, a letter dated March 11, 2002 from Doug Herling to Steve Dunn of our Staff included an attachment entitled "crew deployment" which shows that on Sunday and Monday there were other areas that were affected by the storm, including Alfred, Augusta, Dover, Fairfield,

[215]Response to ADR 1-3 & 4.

[216]Response to ADR 4-4.

[217]Response to ADR 1-1, 2, 3.

Farmington and Skowhegan. This same attachment also shows the areas that were not affected by outages, including Lewiston, Portland and Bridgton. This discrepancy makes it difficult to determine which Service Centers were impacted and utilizing all their available resources versus which areas may have had additional resources that could have been dispatched elsewhere as early as Sunday and Monday to help the restoration effort.

Under ideal conditions, CMP has approximately 117 of its own line crews available throughout all of its service centers.[218] CMP states that it began to fulfill initial additional help requests by the Brunswick Service Center at 5:30 p.m. on Sunday with crews from Portland and the floating construction crew. This help started to arrive in Brunswick around 6:30 pm Sunday evening. At their 9:00 p.m. conference call on Sunday, both Brunswick and Rockland/ Belfast asked for additional help. This help, which included 14 local contractor crews, began arriving on Monday morning and continued into Tuesday.[219]

It is difficult for us to determine whether CMP adequately utilized and deployed the available line workers from Service Centers not affected by the storm because of the disparate information provided in the responses to data requests and testimony. While CMP did deploy additional help and resources from other Service Centers as the days progressed, it did not

[218]Response to ADR 4-12; Tr. 11/7/02 at 59.

[219]Response to ODR 1-3.

actually provide beneficial numbers of workers until late in the restoration process.

According to CMP, it had 63 crews in Rockland at the height of the restoration effort.[220] Yet our investigation revealed that these 63 crews were not all in the Rockland/ Belfast area until Thursday morning.[221] Further, It is not clear whether these crews were all CMP line crews or a total including contractor and tree crews. From all the information provided during our investigation, we estimate that CMP had an average of 27 crews deployed from other service centers in the Brunswick and Rockland areas over the last three days of the restoration effort. When combined with the 21 local crews from the Brunswick and Rockland service centers, it leaves approximately 69 crews still available from other areas. Thus, we are concerned that CMP did not dispatch or deploy as many of their available crews from other centers as they could have and that the ones that did get deployed were deployed days after the storm hit. If CMP had employed more of its available resources earlier in the process, it may have helped shorten the overall restoration time.

CMP's decision early on Sunday not to consider any mutual aid from other utilities appears to have been made prematurely, given the information available to it at that time. We question CMP's conclusion that if it requested mutual aid, the aid would arrive near the end of the restoration process because we cannot identify the information it used to make that

[220]Response to ADV 4-13.

[221]Response to ODR 1-5.

evaluation. CMP has no records or documentation on estimated response times from other utilities. Further, CMP admits that it did not even contact other utilities for estimates.[222] We understand that at the beginning of any storm or emergency event it is difficult to predict just what the conditions are in the field and that some time is needed to better measure the situation. We also realize that CMP has experience from other events that should aid it in identifying early on the types of conditions that may cause extensive damage. Our investigation revealed that the conditions on January 13th did indicate that there was extensive damage to CMP's system and that restoration would be a resource intense endeavor. Given the number of days and hours it took for CMP to restore service, we conclude that mutual aid from sister utilities would have helped speed up the process.

b. BHE

On Sunday evening, BHE had approximately 70% of its own crews working the storm.[223] As of 5:30 p.m., BHE had eleven of its thirteen travel line employees deployed.[224] BHE contacted outside mutual aid and contractor crews on Monday, January 14, 2002. These additional crews began arriving and were dispatched on Tuesday morning.[225] It appears that BHE was relatively quick to take active measures to be sure that sufficient resources

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[222]Response to ADR 4-10.

[223]Response to ADR 3-13

[224]Response to ADR 3-12.

[225]Response to ADR 1-05.

for restoration were available, thus our concern lies not in the gathering of resources, but in their deployment.

BHE depended on outage calls (which populated its automated Power On system) as the primary source of information used by management in determining where outages were occurring.[226] While the Power On system does provide management with good early information on areas that are being affected by outages and a good early evaluation regarding the upstream device that may be connected to the outage, Power On has limitations. Specifically, the accuracy of the information coming out of the Power On system depends upon the accuracy of the information going in. If calls cannot get through to the Power On System, the system will not accurately depict the true extent of the outages. Total reliance on this system could skew management's response to the storm and result in the inefficient deployment of resources.[227]

The fact that BHE has no formal assessment procedure also supports our belief that BHE crews may not have been deployed as efficiently as possible. Outage information alone only tells a portion of the story. In order to develop an efficient, organized restoration plan, it is important to know the extent of damage to the entire system. Without an overall assessment process in place, it seems impossible for BHE storm management to organize an efficient restoration plan when a storm (or other event) of the magnitude of Winter Storm 2002 hits. It is imperative that on a going forward

[226]Tr. 11/21/2002 at 34-40.

[227]Tr. 11/21/02 at 34-40.

basis BHE take the steps necessary to develop a more formal assessment process.

According to the information provided on crew assignments, it appears that BHE did take the steps necessary to begin bringing in additional crews and assigning them to the districts most affected by outages.[228] BHE states that as restoration progressed, BHE crews from other districts as well as all outside crews ended up in the Hancock District where most of the damage occurred. Even though BHE management did move additional crews from other areas into the Hancock District, it is unclear exactly when this took place. Because BHE could not supply detailed information concerning when crews were dispatched from their respective districts to other areas, we are concerned about how BHE management was coordinating the overall restoration effort.[229]

Robert Platt, Operations Manager, testified that he was the individual responsible for securing additional crews as well as coordinating crew deployment. In order to accomplish this, he needed to keep his own personnel log and that during the storm, when so much was taking place, this method may have become ineffective. Mr. Platt also testified that crew coordination is a concern of BHE and that it is addressing the problem.[230] Finally, Mr. Platt testified that to the best of his knowledge, BHE did begin moving

[228]Response to ADR 1-5.

[229]Response to ADR 3-16.

[230]Tr. 11/21/02 at 90, 91.

crews from their home areas to more hard-hit areas before final clean up of the home area.[231]

BHE needs to develop a more organized and formal plan for coordination and tracking of crews. Even though BHE appears to understand the importance of tracking crew logistics, the fact remains that it did not have any formal process to track crew deployment. Because BHE could not provide any information showing the chronological deployment of resources, indecisiveness concerning resource deployment may have delayed the restoration process.

Another area that BHE recognized as an issue was its inability to determine when lines were re-energized and thus efficiently re-direct crews.[232] The main cause of BHE's problems in this areas was a lack of staff to handle call backs to determine if a line or particular circuit had all power restored before moving a crew to another area. Call backs allow a utility to update outage records to reflect the impact of restoration efforts and are a very important tool during the restoration effort to aid accurate and efficient dispatch of resources. Because of the lack of call backs during Winter Storm 2002, crews may have either been idle while waiting for confirmation that the area they were working was completed or been dispatched to outages that had already been restored. Thus, it appears that the lack of call backs may have resulted in wasted time that

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[231]Tr. 11/21/02 at 92.

[232]Tr. 11/21/02 at 71-73.

could have been used to provide more timely restoration. BHE itself has recognized the callback issue as a potential problem and is in the process of putting into place a new corporate approach to the handling of callbacks.

3. Conclusions

It appears that CMP had systems in place to address many of the issues that arose during Winter Storm 2002 but did activate those systems due to its incorrect categorization of the Storm, which was due to CMP's failure to follow its own ERSP. Thus, CMP must first ensure that it complies with its own ESRP during storm and emergency events. To that end, CMP should review its ESRP to ensure that its procedures fully address emergency (storm) conditions requiring emergency outage restoration. If, during a particular future storm or emergency event, CMP elects to substantially deviate from its ESRP, it must document the reasons for the deviation and make the documentation available to the Commission upon request.

As stated above, BHE's restoration efforts were hampered by its lack of a formal assessment plan. Thus, we order BHE to develop a formal assessment plan within its EOP and to file the plan within 60 days of this Order. BHE must also address its problem with handling callbacks to customers for populating outage records on the Power On System. BHE should file a report within 60 days of this Order outlining the improvements it is making in this area.

Both CMP and BHE need to implement a process for tracking and monitoring crew deployment. We believe this is essential to the

efficient deployment of resources and, ultimately, to a more timely restoration of power. Both CMP and BHE should file reports outlining their improved processes in this area within 90 days of the Order.

E. Self-Assessment

During the *1998 Ice Storm Investigation*, the Commission determined that both BHE and CMP had in place a processes for self-assessment of their performance after major outage events. Although not directly listed within the recommendations of the *1998 Ice Storm Order*, the Commission understood that the utilities would continue to do self- assessments and, if requested, would provide the Commission with a copy of the results of the self-assessment.

Both CMP and BHE did self-assessments of their performances during the Winter Storm 2002, though CMP waited nine months to provide the Commission with a copy of the assessment. Specifically, on February 6, 2002, CAD requested a copy of CMP's and BHE's self-assessments of the January 2002 storm. BHE responded quickly and provided a copy of its January 24, 2002, self-assessment report. On March 11, 2002, CAD received a response from Doug Herling, Vice President of Customer Services, at CMP. In his response, Mr. Herling stated that," CMP does not usually prepare a detailed written report for such storm events and I have agreed to provide you with an explanation in this case." Mr. Herling then proceeded to give a one-paragraph description of the storm and then responded to the five specific questions that CAD had posed in its request. No further information was provided.

During the November 7, 2002 Technical Conference in this case, when questioned about its formal storm review process, CMP stated that formal reviews are only done for Level 3 storms, i.e. situations where the corporate steering committee is involved in management of restoration. (The steering committee is not involved in a Level 1 or 2 storm.) CMP has no process in place for the steering committee to critique a storm with which they were not involved. However, CMP does have an informal process for reviewing storms to see if improvements can be made.

CMP advised that it had put a team together to conduct an informal critique of the January 2002 storm. As a result of that team's assessment, CMP improved the process of switching trunk lines, so that CMP no longer has to manually change trunk lines over every weekend or when a storm is approaching. CMP also added an additional 10 trunk lines, so it now has 127 lines that can take either outage or business calls. CMP also concluded that further training of CMP personnel was needed, and that changes to its computer programs for outages needed to be made so that better use could be made of those programs. Other issues raised included the need to provide more specific and timely storm restoration information to its customers and the inadequacy of contacts with emergency management personnel.

In response to ODR 1-9, CMP provided Advisory Staff with a copy of the informal critique, which was entitled "Storm Critique 2002" and dated September 24, 2002. The CMP team that conducted the critique appears to have started the process on February 14, 2002. CMP did not provide Advisory

Staff with a copy of the critique or information that such a critique was even being done until approximately 9 months after CAD made its initial request for this information on February 6, 2002.

BHE conducted a self-assessment on January 24, 2002, immediately after the January storm and provided a copy of that assessment to the Commission when the CAD requested it. BHE was very forthcoming with this information and showed a great interest in addressing the problems it discovered through its self-assessment. BHE found 48 areas where problems existed with its January 2002 storm restoration process. The problems included: the initial underestimation of damage resulting from the storm, issues with the operation of BHE's Power On system, bird-dogging, customer call backs, customers calling BHE receiving busy signals, the need to expand BHE's info "push", assignment of crews, and radio communication problems. During this Investigation, BHE has advised Commission Staff of the actions it is taking, or has taken, to address these issues and other issues raised by Staff.

We support BHE's willingness to critically look at its performance during the January 2002 storm and to share that information with the Commission. Unfortunately, CMP has not been as forthcoming. The assessment that CMP did of the storm was helpful, but should have been done sooner; its existence also should have been disclosed and voluntarily provided to the Commission.

In order to ensure that CMP and BHE continue to conduct self-assessments, we order BHE and CMP to do an internal assessment of all Level

2 and Level 3 storms and provide a copy of that written assessment to the Commission within one month after the conclusion of the storm.

VII. ORDERING PARAGRAPHS

We hereby Order the following:

Verizon shall:

1. Improve its ability staff-up more quickly and assign personnel to manage DLC back-up power during storms and other emergencies.

2. Develop detailed emergency response plans to provide operational guidance during future emergencies, and maintain a copy of all such plans at the Commission.

3. Review and test emergency plans annually through drills that involve personnel who would have responsibility for management of future emergencies in Maine, and provide the Commission with evaluations of those drills.

4. Make proactive contact with both MEMA and county EMAs during emergencies and wide-spread, multi-day outages.

5. Communicate detailed information concerning outages, the expected duration of the outage, and restoration priorities to MEMA and county EMAs and copy the Commission on all such communications.

6. File with the Commission copies of all agreements reached with state and county emergency management personnel and/or copies of letters to such persons providing detailed contact information for Verizon to be used during outages and emergencies.

7. Reach agreements with all T&D utilities in its service area concerning how, at what levels, and through what specific channels communication will take place during storm and emergency situations and file copies of the agreements at the Commission by **November 30, 2003**.

8. File a report with the Commission within 90 days of this Order describing actions taken to comply with the Commission's *1998 Ice Storm Order*.

9. File a plan covering all DLCs in Maine which provides for managing DLC back-up power maintenance restoration such that customers served by DLCs do not lose service solely due to a lack of commercial power.

10. Begin collecting DLC outage data (number of customers losing service) with the ultimate goal of combining it with the Network Trouble Report and Service Outage data sources when we next reset those SQI metrics' performance baselines.

11. Report all outages that meet Chapter 200's criteria, i.e. any outage that affects at least 500 lines for at least 5 minutes in *any* part of Verizon's service territory.

12. Make the necessary changes in its Chapter 200 outage data gathering and reporting such that if DLC customer outages are reportable under Chapter 200 or cause an outage event to be reportable, the number of DLC customers out of service for over 5 minutes must be accounted for in Chapter 200 outage reports.

13. File a revised priority matrix within 90 days of this Order which: (a) gives customers of out-of-service DLCs higher service restoration 3priorities than they have under the existing system based on the order in which customer trouble reports are received; (b) gives out of service residential customers priority over new installations for business customers during a storm or emergency events; and (c) gives restoration of service to other utilities a specific high priority position on the matrix.

14. Develop a policy that will direct its employees during extended outages to retain, for one year, spreadsheets and work papers that contain data on DLC power losses, outages, outage durations, and locations, unless Verizon can make such data readily available from other sources.

15. Make the upkeep of alternate power to its DLC systems a priority by permanently assigning personnel to coordinate back-up power maintenance for particular geographic areas.

16. Develop and file by **November 30, 2003,** written documentation and procedures which provide the current location of all available

generators by county (or other reasonable geographic subdivision) and which suggest possible rotations of generators if all commercial power is lost in the geographic area.

17. Purchase any additional generators needed in order to ensure a feasible generator rotation plan by **January 1, 2004.**

18. Develop a policy that requires a formal assessment of its performance in restoring services, in maintaining power to DLCs, and in managing the personnel and resources that support those activities for all wide-spread, multi-day outage events.

19. Complete any required assessment within 90 days after the event and file it with the Commission no later than 30 days later.

CMP shall:

20. Develop specific guidelines for unusual weather conditions within a weather report or alert that would prompt action within their emergency response plans.

21. Initiate a plan for documenting decisions made for any pre-storm preparations as a result of weather reports (alerts) that fall within set guidelines.

22. Incorporate a procedure within its ESRP for disseminating extraordinary weather reports (alerts) to essential personnel on a 24-hour schedule, seven days a week.

23. File a report within 90 days describing actions taken to comply with the Commission's *1998 Ice Storm Order* .

24. File a report within 90 days of the Order on what additional steps or additional triggers might be taken or put in place to assure proper notification of extended outages to emergency management personnel.

25. Develop and submit a comprehensive Restoration Information Plan within 90 days of the date of the Order.

26. Take all necessary steps to assure compliance with the outage notice requirements contained in Section 7(C) of Chapter 810 in unplanned outage situations involving customers with pre-existing medical emergencies or that have life support designations.

27. Establish a formal communication process with other utilities for each level of storm or emergency, including e-mail communications procedures as well radio, cellular and telephone communications procedures and file the plan within 90 days of this Order.

28. File a report with the Commission within 90 days of the Order specifying what steps it has taken to improve its systems to be able to provide the necessary information to comply with the reporting protocol for Chapter 130. The report should also specify who at CMP will be responsible for contact with the Commission and provide contact information (telephone, mobile phone, and pager numbers).

29. Review its ESRP to ensure that its procedures fully address emergency (storm) conditions requiring emergency outage restoration. If, during a particular future storm or emergency event, CMP elects to substantially deviate from its ESRP, it must document the reasons for the deviation and make the documentation available to the Commission upon request.

30. File a report within 90 days of the Order outlining a process for tracking and monitoring crew deployment.

31. Conduct an internal assessment of all Level 2 and Level 3 storms and provide a copy of that written assessment to the Commission within 120 days after the conclusion of the storm.

BHE shall:

32. Develop specific guidelines for unusual weather conditions within a weather report or alert that would prompt action within their emergency response plans.

33. Initiate a plan for documenting decisions made for any pre- storm preparations as a result of weather reports (alerts) that fall within set guidelines.

34. File a report within 90 days describing actions taken to comply with the Commission's *1998 Ice Storm Order*.

35. Report to the Commission within 90 days of the date of this Order on what changes it has made or intends to make to improve its phone system and eliminate call volume limitations.

36. Develop and submit a comprehensive Restoration Information Plan within 90 days of the date of the Order.

37. Take all necessary steps to assure compliance with the outage notice requirements contained in Section 7(C) of Chapter 810 in unplanned outage situations involving customers with pre-existing medical emergencies or that have life support designations.

38. Establish a formal communication process with other utilities for each level of storm or emergency, including e-mail communications procedures as well radio, cellular and telephone communications procedures and file the plan within 90 days of this Order.

39. Develop a formal damage assessment plan within its ERP and file the plan within 60 days of this Order.

40. File a report within 60 days of this Order outlining the improvements it will make in handling callbacks to customers for populating outage records on the Power On System.

41. File a report within 90 days of the Order outlining a process for tracking and monitoring crew deployment.

42. Conduct an internal assessment of all Level 2 and Level 3 storms and provide a copy of that written assessment to the Commission within 120 days after the conclusion of the storm.

Respectfully submitted,

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Trina M. Bragdon,
Hearing Examiner
On behalf of the Advisory Staff
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Douglas Cowie
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